MAY
1956

Service
Management
Analysis

fueloil & oil heat

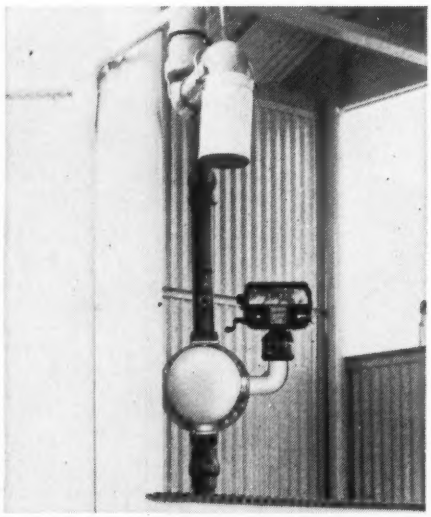
Progressive
Dependable

MAY 9 1956

INSTALL BRODIE METERS IN ANY POSITION

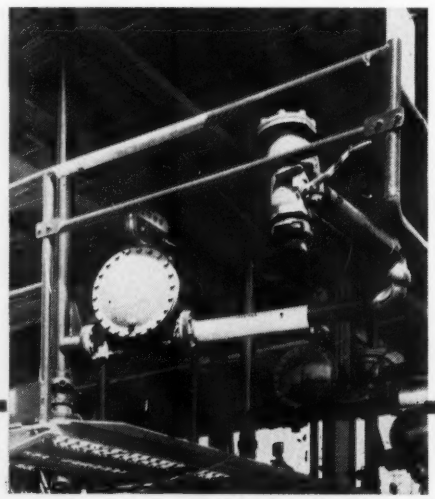
to meet loading rack requirements

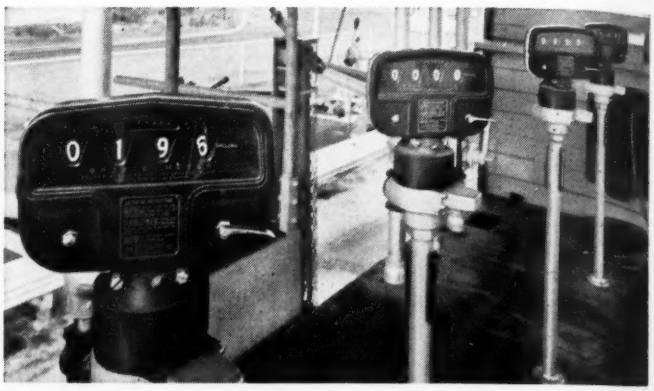
- Vertically or horizontally
- In loading arm or swivel riser
- Supporting the piping or line supported



▲ Vertically mounted to swing with the loading arm so counter always faces the operator.

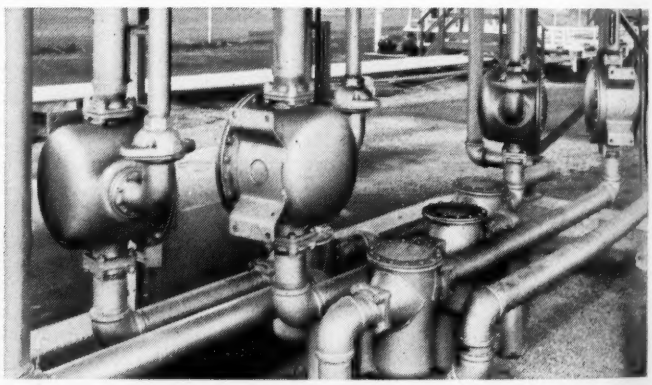
▼ Horizontally mounted in loading arm—counter always directly visible from loading position.



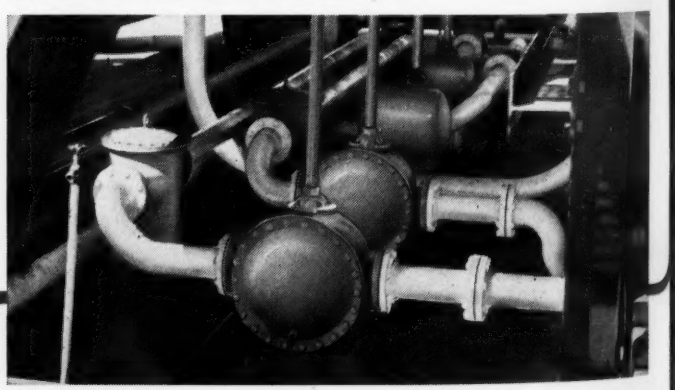


▲ With meters below the rack, out of the way of operating personnel, counters are extended above the rack for full visibility. Note swivel adaptors permitting counters to face any direction.

▼ Vertically mounted meters supported by the line with extensions to loading deck counters.



▼ Horizontally mounted meters below the rack, out of the way, with counters extended above the rack for full visibility.



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RALPH N. BRODIE COMPANY · San Leandro, California, U.S.A.

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REPRESENTATIVES WITH STOCKS AND SERVICE FACILITIES IN ALL PRINCIPAL CITIES

MAY fueloil & oilheat 1956

VOLUME 15 NUMBER 5

Publication and Editorial Office: 2 West 45th St., New York 36, N. Y.

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Among other things . . .

That old "debbil" oilburner service gets our attention again in this "Oilburner Service Management" issue. The two part presentation this year opens with a look at how well the industry does in selling oilburners for new homes and in the modernization market, specifically the replacement of old, obsolete and inefficient burners. The interesting part is that reports from our oilheating dealers readers indicate strongly that oilburners can be sold for new home installation, even in those areas where gas is available. The market for oilheating in old homes is even more virile.

The second part of the oilburner service study, "Service sustains the Industry," presents an enlightening look at the over-all service picture with means and averages for the country and by sections so that you can compare your company with these composite figures.

Then there's the conclusion of the "Volt-Amp" article and a comprehensive, "serviceman's look" at Honeywell's Moduflow control system.

How to Avoid

MAKESHIFT

Electrode Assembly

REPLACEMENTS

NO service condition caused by faulty electrode assemblies justifies use of misfit replacements.

You can be prepared for practically any condition, with a minimum assortment of assembly designs, if you select your stock from the line of

Sparktrodes by DIELECTRIC

BECAUSE -

- **Sparktrodes are made in five U/L-approved types which, in 20 insulator lengths, are applicable to 129 different burners;**
- **Sparktrodes are made, also, in 175 special designs, exactly to burner manufacturers' specifications;**
- **Sparktrodes are stocked in a wide variety of designs by Dielectric Jobbers, for fast response to your orders;**
- **Sparktrodes in all of these designs are always available for same-day shipment to our Jobbers in any quantity.**
- **There's no need to take chances with makeshift replacements when**

YOU CAN BE SURE WITH

Sparktrodes by DIELECTRIC

MADE BY THE WORLD'S LARGEST MANUFACTURER OF THE GREATEST VARIETY OF DESIGNS

* * *

PIONEER WITH STANDARD TYPES

* * *

LEADING SUPPLIER TO OIL BURNER MANUFACTURERS

* * *

Write us for the names of your nearest Dielectric Jobbers

OHI

DIELECTRIC

PRODUCTS COMPANY, INC.

Jersey City New Jersey

Names in the News

Willis E. Jones has been named sales manager, Mercoid Corp., Chicago, Ill., *Paul J. Provost* has advanced to the position of manager, Industrial Controls Div. Jones will have exclusive supervision of the corporation's general selling activities; Provost in operating a newly-defined activity of the company concerned with industrial controls, will be identified closely with the work he has been doing for some years past. *G. R. Folds, Jr.* has been recalled to Chicago from the West Coast area to work with Provost in the new department. All three will be under the direction of J. W. Owens, executive vice-president.

T. Bruce Selfridge is the newly-appointed manager of special products for Enterprise Engine & Machinery Co., San Francisco, Calif. Selfridge will direct sales of oil-burners and other Enterprise products. Formerly vice-president and general manager of Columbia Machine Works, Berkeley, Calif., he brings to his new position a 10-year industrial background of sales and engineering.

Selfridge

Stephen Ingersoll has been elected president and general manager of the Ingersoll Steel Division of Borg-Warner Corp., New Castle, Ind., succeeding H. G. Ingersoll who has retired. Stephen Ingersoll was elected executive vice-president in June, 1954, after having served as a vice-president of the Ingersoll Steel Division since 1930. He also was president of the Stefco Steel Co. at Michigan City, Ind., from 1946 to 1950, and was president of the Chicago Rolling Mill Co. in 1929.

Devereaux Martin has been appointed to the position of vice-president in charge of engineering and research for the Econo Products Co., Inc., East Haddam, Conn. Martin, formerly assistant to the president of Electronics Corporation of America, will be in charge of new products development for the company, which manufactures hot water circulators, low water cutoffs, and other heating specialties.

Robert F. McCall has been named national sales manager of Revcor, Carpentersville, Ill., to strengthen and expand its sales of blower wheels and housings. McCall joins the company after 12 years' of sales engineering experience with Black and Decker Mfg. Co.

McCall

James E. O'Brien, veteran of 13 years' experience in the meter field, has been named service engineer in the Chicago area for Granberg Corp., Oakland, Calif. O'Brien's appointment is part of an overall program to create a complete service center for all Granco pumps and metering equipment. The firm's warehouse facilities will be expanded also to stock the complete line of Granco pumps and meters.

William G. Hunsicker has been appointed sales engineer for the Delavan Mfg. Co., West Des Moines, Ia. Hunsicker was formerly employed as a sales manager at the Electric Motors Co., Cedar Rapids. His appointment is part of a program aimed at increasing the firm's engineering and research facilities.

Ralph Allen, formerly market manager, heating division, Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., has been named administrative assistant to the general sales manager. He succeeds *Clarence W. Spangle,* who has been appointed gen-

BIG SAVINGS YOUR CUSTOMERS WILL CERTAINLY WANT

Patents Pending

the *NEW* #4 OIL BURNER

DRASTICALLY CUTS FUEL COSTS

Converts #4 (and #5) Oil to Burn Efficiently as #2 Oil.

✓ ***APPROVED*** for #4 fuel oil by Underwriters' Laboratories, Inc., and by the Board of Standards and Appeals of the City of New York.

✓ ***BEST BET*** for cutting fuel bills in apartment houses, schools, institutions, commercial and industrial buildings and heating processes by using lower priced fuel oil.

✓ ***AUTOMATIC*** — Electric fuel converter system, complete with safety shut-down and mechanical oil cut-off, is thermostatically controlled — automatically. Complete assembly easily accessible for quick service.

- **Built-in "Thermax" Converters Reduce Heavy Oil to Light Oil**
- **As Quiet as a #2 Oil Burner**
- **Easy to Install and Service**
- **No Complicated Parts**
- **Can Use Existing Piping in Practically All Cases**
- **3 Sizes—3 to 20 G.P.H. Larger Sizes Available Later**

Write for Bulletin and Prices

Inquiries Invited from Boiler and Furnace Manufacturers

SUN-RAY — FAMOUS THE WORLD OVER FOR QUALITY AND ECONOMY

Models for Every Heating Need in Sizes from 0.5 to 22 g.p.h.

SUN-RAY BURNER MANUFACTURING CORPORATION

139-22 Queens Boulevard, Jamaica 35, New York

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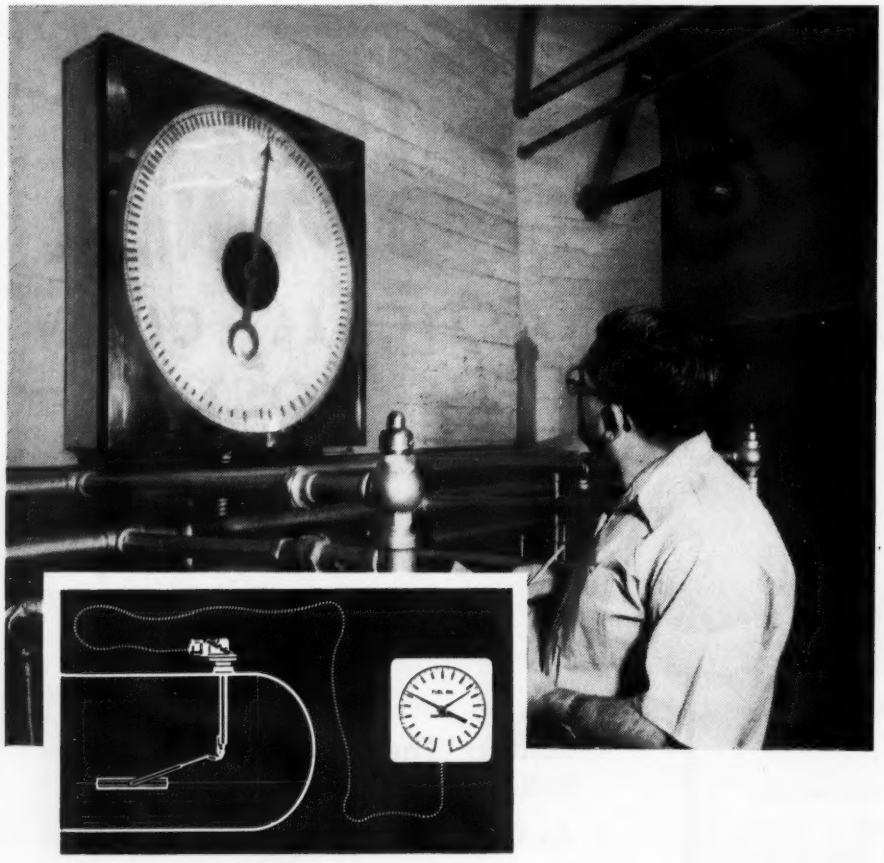
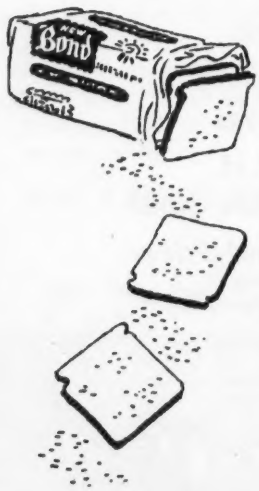
BAKING PLANT RECEIVES 29 YEARS OF TROUBLE-FREE GAUGING





Reliability is a *must* in industrial gauging. That is one reason why Liquidometer quality gauges are specified in a wide range of industries where liquids are stored and measured.

The Liquidometer gauge installation at General Baking Company's Brooklyn plant is typical. It takes close to 7000 gallons of fuel oil per week to run the baking ovens, generate steam and heat the plant. Here, the important job of fuel gauging has been successfully performed by the same Liquidometer Senior gauge uninterruptedly for 29 years.

Dependability, low-maintenance, high readability, safety and ease of installation suit Liquidometers for your liquid gauging needs.

A variety of dial type Liquidometer gauges are available for direct and remote indication. For complete details write Dept. C for Bulletin 463.

LIQUIDOMETER INSTRUMENTS

Liquids worth storing are worth measuring

THE LIQUIDOMETER CORP.

SKILLMAN AVENUE AT 36TH STREET, LONG ISLAND CITY 1, N.Y.

eral manager of Honeywell's subsidiary in Germany.

Robert C. White has been appointed chief product specialist, Machinery and Systems Division, Carrier Corp., Syracuse, N. Y. He will make his office at the home plant. He had been senior sales engineer in the division's Chicago district office.

J. C. (Jack) Davidson has been promoted to assistant sales manager-residential heating and cooling, Airtemp Division, Chrysler Corp., Dayton, O. Davidson has been associated with the Division since 1947.

Richard J. Wickert has been named field engineer, Perfex Division, General Controls Co., Glendale, Calif. He will be located at the company's Perfex engineering department at Milwaukee.

George F. Farrell has joined FUEL OIL & OIL HEAT as circulation director. He has a background of nearly 20 years experience in the publishing field, encompassing affiliations with both trade and consumer magazines. Farrell has been with Hearst magazines as assistant to the subscription sales promotion manager, with *Newsweek* as direct mail promotion manager and more recently with *Marine News*, where he served as circulation manager.

W. Douglas Reed has been appointed assistant to President Samuel H. Shipley, York-Shipley, Inc., York, Pa. Most of Reed's experience has been as a sales representative in Europe, the Near East and Africa.

Arthur D. Floyd has been appointed New England district manager, Electric Furnace-Man, Inc., Emmaus, Pa. He will be responsible for the promotion of oilfired boilers in furnaces in New England, excluding Vermont, Western Massachusetts and lower Connecticut.

Attention: Oil Heat Dealers

GULF

especially invites you to visit its display

EVENT— 21st National Oil Heat and Air-Conditioning Exposition
sponsored by the 34th Annual O.H.I. Convention

PLACE— The NEW Coliseum
Columbus Circle, New York City, N.Y.

DATE— June 11th, through 15th

TIME— 1:00 PM—10:00 PM Monday through Thursday
1:00 PM—6:00 PM Friday

Plan to meet your friends at the GULF BOOTH—Spaces 337, 338, and 339
located opposite the W. 60th Street exit

....We'll be expecting you!

GULF
SOLAR HEAT
heating oil

GULF OIL CORPORATION • GULF REFINING COMPANY

Editorial Leaks

Because we believe the Oilheating Exposition at New York in June is mighty important, we have asked Ralph Becker, managing director, Oil-Heat Institute of America, to take over the "Leaks" page in this issue and tell us why we should all be there.

"This way to the big Show"

SPRING IS HERE! Witness the recent telecast of the dress rehearsal for "The greatest Show on Earth." Featured were ponderous pachyderms, acrobats in flying leaps, crazy clowns and lady somersault riders. Great entertainment with spills and thrills.

Becker

Your industry circus, June 11-15, will be exciting, too. So, "Ladees and gen-tel-mun, I have the hon-nor and gr-r-r-ate pleas-yur to an-nounce the twenty-first nash-shun-al oil heat and air con-dish-on-ing ex-po-ziz-shon in Ring No. 1 at the new, co-los-sal, Col-i-see-um featuring a hun-der'd an' fifty and more displays of new an' im-prooved equipment and services. And in Ring No. 2, industry Manage-ment Con-fer-ences at Park Sheraton Hotel spon-sir'd by the thirty-fourth Annual OHI Con-ven-shun. Come one, come all, these affairs were created for you!"

In the old days, the rallying cry, "Hey, Rube!" was the signal for circus people to grab tent stakes and drive local hoodlums, drunks and trouble makers away. They always did by out-fighting and out-maneuvering with talented organization and strategy.

"What will be our rallying cry?" Or will we let ourselves be driven off the lot? Every member of the industry should attend and get in his licks for the good of all!

Dealers, wholesalers, jobbers, manufacturers and suppliers must agree that the future of our industry is in their own hands. They can make it big and strong or small and weak. No one segment can take full responsibility to solve our self-made problems. But all, banding together in common purpose with mutual objectives, must contribute both manpower and money in equitable proportion to provide positive thinking, long-range planning with adequate promotion necessary to revitalize our industry. Be on hand to lend a hand!

Your Convention-Exposition is not going to solve all our problems but it can stimulate the creation of a new, forward-looking, public relations act for present and prospective customers. The truth of the matter is, we need bigger profits. Without them, we have neither the inspiration nor the wherewithal to do much needed research in equipment and promote new products with greater sales appeal in efficiency and glamour!

How many sales have been lost because of sub-standard installation and service? Don't forget, it's hard to win back a good reputation once you've lost it. Nor is good reputation made on low price combined with poor quality.

Profit making ideas are needed from you and everyone else for dissemination to the industry and to be put into action. We have the brains and ingenuity to provide an "idea pool" of better methods in advertising, sales, merchandising and promotion, better technical training and better management. Your participation in the idea pool is needed. Then we'll have a rallying cry, "Let's intermix ideas for a profitable fifty-six."

Ring No. 1—Your Show

Over 150 manufacturers cooperated in building your show! They offer you a first-hand look at new products and services built by leaders of the industry. They're laying it on the line so you can judge and evaluate, select and choose.

Your customers are smarter today, more selective, more analytical. "Yes, but they're price-minded," you may say. True, but they're also quality-minded and information hungry, too. Today's customers are the smartest you've ever had to sell.

You have to "know your stuff," to sell 'em what they need at a price you can afford. Better come to your show and find out how!

There's no charge for admission for industry people, architects, builders, engineers and other "specifiers." In circus language, you get a "ganesfake, snow, Annie Oakley or ducat"—a free ticket! All you do is register in the lobby of the Coliseum and get your badge which admits you during show hours—June 11-15.

Ring No. 2—Management

Conferences at Park Sheraton Hotel will be sponsored by the Institute for members and non-members alike. See the premiere of the first color TV film for the industry and the new service training sound strip films provided to the industry by members of OHI.

Open forums provide time and place to listen and learn and to "speak your piece." The objective is to unify in spirit and purpose all segments of the industry by creating a practical plan to earn automatic oilheating "top billing." Contribute your best idea! Take home a dozen!

Ring No. 3—The Little Woman

Give her the full brilliancy of the spotlight. Bring her along. You won't put your head in the lion's mouth as plans have been made for her, too.

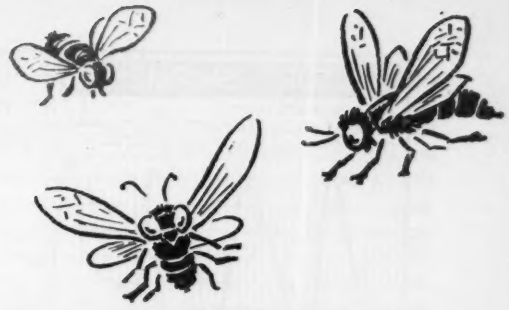
There'll be a Ladies Lounge on the mezzanine of the Park Sheraton for her convenience. While they last, tickets will be provided for TV and radio shows. For sight-seeing, low priced tickets may be had for motor bus or boat excursions. For shopping, restaurants, fashion shows, or other information, a staff member will be on hand to counsel and advise.

Made your hotel reservations? Ordered your transportation? Better do it now! You can't afford to miss this Exposition and Convention nor a New York City vacation—June 11-15. Oh yes, your business trip is a tax deductible business expense.

There are NO BUGS in VENTALARM

TRADE MARK REG. U. S. PAT. OFF.

Original and Dependable WHISTLING TANK FILL SIGNAL



New Model featuring "Built-In" Bug Protection

Now . . . all VENTALARM Signals include a non-corroding screen sealed into position over the whistle-top opening. Venting remains as free as ever, but:
no bug can get into the whistle to muffle or stifle the sound.

Free from "BUGS" of any kind

VENTALARM Signal has won "endorsement by use" from over 4500 major and independent dealers.

- Full variety of models to satisfy every tank condition, new or old.
- Sold through a nationwide network of leading Supply Houses.
- Underwriter's Laboratories Listed.
- Universally approved by leading Fire and Safety Authorities.
- Complete Merchandising Support for the Fuel Oil and Oil Burner Dealer.

Tested literature available at cost to help you build sales with VENTALARM Signal.

Saves up to 30% of delivery costs.

"Just fill 'till the whistle stops"

Over 4,000,000 VENTALARM Signals proven in field use.

Contact your Regular Supply House for all these forms of VENTALARM Signal

SCULLY SIGNAL COMPANY
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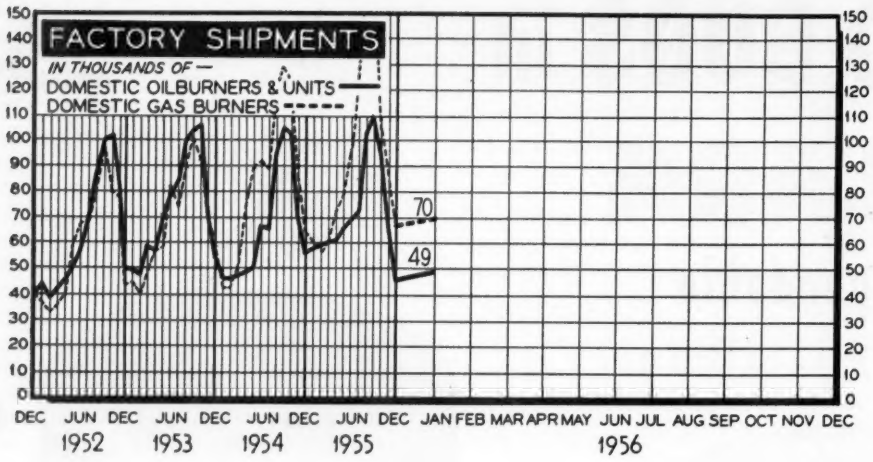

FACTORY SHIPMENTS
IN THOUSANDS OF —
DOMESTIC OILBURNERS & UNITS
DOMESTIC GAS BURNERS
70
49
DEC JUN DEC JUN DEC JUN DEC JUN DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1952 1953 1954 1955 1956

Shipments of Oilburners and Units

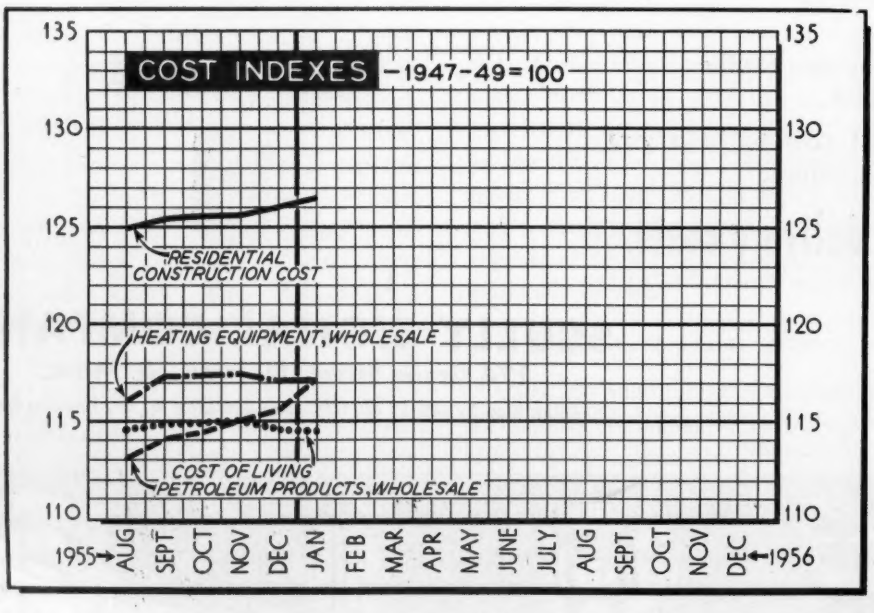
	JANUARY			TWELVE MONTHS		
	1956	*1955*	*Percent Change*	*1955*	*1954*	*Percent Change*
Separate Burners	33,908	40,886	— 17.1	571,603	520,271	+ 9.9
Boiler Units	4,120	4,312	— 4.5	81,496	66,805	+ 22.0
Furnace Units	11,563	12,567	— 7.9	207,534	194,912	+ 6.5
All Domestic	49,591	57,765	— 14.2	860,635	781,988	+ 10.1
Commercial	2,786	2,532	+ 10.0	41,284	38,320	+ 7.7
Total	52,377	60,297	— 13.1	901,911	820,308	+ 9.9

March Minimum Retail Prices: Key Dealers

	SEPARATE BURNERS	BOILER-BURNERS	FURNACE-BURNERS
March Aver.	$314	$721	$593
February Aver.	307	724	588

Price Index: Separate Burners: 1947-49 is 100%

	WHOLESALE				RETAIL			
March	94.5	Six months ago	89.6	March	93.8	Six months ago	89.2
February	93.8	Year ago	92.9	February	93.2	Year ago	93.5


COST INDEXES —1947-49=100
RESIDENTIAL CONSTRUCTION COST
HEATING EQUIPMENT, WHOLESALE
COST OF LIVING
PETROLEUM PRODUCTS, WHOLESALE
1955→ AUG SEPT OCT NOV DEC JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC ←1956

Oilheating Trends

MARCH INSTALLATIONS of domestic oilburners and units are estimated at 39,633 which is 15% above the same month in 1955. The totals for the first quarter were 141,585 this year against 126,439 a year ago. This shows a 12% rise for the quarter.

The March installations were divided: New homes, 17,062; Replacements of old oilburners, 7,881; Conversions from other fuels, 14,690. This last item continues to decline in importance and this month represented only 37% of total installations.

BURNER STOCKS: March continued the high level trend in dealer stocks of domestic oilburners and units, ending the month at 122,413. This compares with 110,387 the previous month, and 115,446 a year ago.

There are only two possible explanations for these mounting dealer stocks. Either the factories are making unusual concessions or the factory salesmen have convinced the dealers that prices are bound to rise soon.

A glance at our new style of burner price index in the table at the left gives some support to this latter viewpoint.

The current dealer stocks were divided: Separate burners, 51,819; Boiler-burner units, 35,748; Furnace-burner units, 34,846. Notice that the big push-up over last month is in the complete units. This looks like the dealers are aiming at more new home business.

Factory stocks on January 31, the latest available data were 56,516 compared with 51,733 for last year.

Tank stocks at the end of March were 71,033, a high point for this season apparently anticipating a price increase although the March average for the 275 gal. size was unchanged at $31.

Oilheating business Barometer

Oilburner Permits

Mar. 1956		OILBURNER PERMITS* Three Months 1956	1955	% Change
4	Albany, N. Y.	10	10	0
19	Baltimore, Md.	115	129	—11
62	Bridgeport, Conn.	223	264	—16
..	Columbus, O.	..	179	..
127	Detroit, Mich.	474	..	..
63	Elizabeth, N. J.	136	52	+26
16	Freeport, N. Y.	75	114	—34
17	Hartford, Conn.	82	349	—77
11	Irvington, N. J.	35	30	+17
21	Meriden, Conn.	88	82	+ 7
..	Milwaukee, Wisc.	..	1079	..
11	Minneapolis, Minn.	46	41	+12
7	Montclair, N. J.	28	36	—22
2	Morristown, N. J.	6	6	0
18	Mt. Vernon, N. Y.	46	60	—23
38	Newark, N. J.	145	180	—20
107	New Bedford, Mass.	385	199	+93
13	New Haven, Conn.	42	48	—13
..	New Rochelle, N. Y.	..	85	..
100	Norfolk, Va.	210	75	+28
..	Omaha, Nebr.	..	14	..
4	Orange, N. J.	14	31	—55
3	Passaic, N. J.	12	15	—20
17	Paterson, N. J.	50	78	—36
217	Philadelphia, Pa.**	613	745	—18
40	Portland, Me.	130	122	+ 7
327	Portland, Oreg.	859	862	— 1
5	Poughkeepsie, N. Y.	30	55	—46
37	Providence, R. I.	173	164	+ 5
49	Richmond, Va.	138	95	+45
53	Roanoke, Va.	251	250	+ 0
107	Rochester, N. Y.	183	235	—22
7	Rockville Center, N. Y.	25	34	—27
15	Salem, Mass.	96	83	+16
..	St. Louis, Mo.	..	381	..
2	St. Paul, Minn.	26	37	—30
15	Schenectady, N. Y.	28	27	+ 4
..	Spokane, Wash.	..	506	..
91	Springfield, Mass.	268	282	— 5
25	Stamford, Conn.	64	99	—35
54	Washington, D. C.	153	175	—13
9	White Plains, N. Y.	37	48	—23
17	Wilmington, Dela.	62	110	—44
65	Worcester, Mass.	237	233	+ 2
..	Yonkers, N. Y.	..	80	..
1795	Totals	5121	5445	— 6

*Permits are not total sales in each market since none are reported from suburban areas, which normally account for 20% to 60% of total sales in each market; nor are they an accurate index where enforcement is lax. Rightly used, however, they are a useful working index.

**Courtesy of "Philadelphia Inquirer."

New Dwelling Permits

Nov. 1955		NEW DWELLING PERMITS Eleven Months 1955	1954	% Change
88	Maine	1,405	1,183	+19
167	New Hampshire	2,142	1,581	+35
27	Vermont	331	305	+ 9
1,592	Massachusetts	23,860	20,870	+14
251	Rhode Island	3,210	3,169	+ 1
1,160	Connecticut	16,845	16,404	+ 3
3,285	NEW ENGLAND	47,793	43,512	+10
5,196	New York	88,725	83,072	+ 7
3,391	New Jersey	50,468	45,491	+11
2,851	Pennsylvania	43,044	35,989	+20
203	Delaware	4,009	3,468	+16
1,942	Maryland	28,687	28,772	..
97	Dist. of Columbia	2,702	2,660	+ 2
13,680	MID-ATLANTIC	217,635	199,452	+ 9
1,791	Virginia	30,391	28,092	+ 8
208	West Virginia	3,058	2,772	+10
815	North Carolina	12,446	11,187	+11
380	South Carolina	5,060	4,447	+14
1,179	Georgia	18,648	19,288	— 3
3,840	Florida	49,276	44,802	+10
8,213	SOUTH ATLANTIC	118,879	110,588	+ 7
3,680	Michigan	59,277	56,647	+ 5
3,422	Ohio	58,373	50,990	+14
1,084	Indiana	20,204	20,378	— 1
4,054	Illinois	65,198	50,641	+29
1,514	Wisconsin	20,334	18,972	+ 7
673	Iowa	9,318	7,511	+24
869	Missouri	16,429	15,416	+ 7
578	Kansas	9,865	10,209	— 3
367	Nebraska	5,627	5,091	+11
118	South Dakota	2,270	2,067	+10
63	North Dakota	1,623	1,688	— 4
1,189	Minnesota	18,148	16,395	+11
17,611	MIDWEST	286,666	256,005	+12
903	Kentucky	12,185	10,303	+18
940	Tennessee	16,147	14,796	+ 9
701	Alabama	12,677	11,749	+ 8
262	Mississippi	3,488	3,898	—11
309	Arkansas	3,971	3,844	+ 3
1,070	Louisiana	13,727	12,738	+ 8
463	Oklahoma	9,224	9,711	— 5
4,387	Texas	65,553	62,843	+ 4
9,035	SOUTH CENTRAL	136,972	129,882	+ 5
78	Montana	1,958	1,832	+ 7
113	Idaho	1,818	1,558	+17
51	Wyoming	1,173	1,521	—23
1,413	Colorado	19,084	17,007	+12
586	Utah	7,193	6,506	+11
467	Nevada	3,774	4,421	—15
299	New Mexico	5,972	6,167	— 3
949	Arizona	12,757	10,602	+20
3,956	MOUNTAIN STATES	53,729	49,614	+ 8
1,008	Washington	19,969	19,431	+ 3
365	Oregon	7,319	7,411	— 1
12,855	California	200,874	180,965	+11
14,228	PACIFIC STATES	228,162	207,807	+10
70,008	ALL STATES	1,089,836	996,860	+ 9
53,764	METRO. AREAS	862,880	797,260	+ 8
16,244	NONMETRO. AREAS	226,956	199,600	+14

Special Study this Month

OILHEATING SALES OUTLOOK FOR 1956: At the end of the first quarter of the year oilheating dealers across the nation were expecting their own installations in 1956 to run 3% above last year. There was some variation by sections of the country. New England expects a 4% rise; the Mid-Atlantic area believes it will pick up 3%; in the Midwest the outlook among reporting companies is for a 1% drop; while the Pacific Northwest anticipates a 15% increase.

It is important to notice, however, that these expectations are based on the outlook of the individual reporting companies. When we ask them to estimate what they expect in 1956 oilheating installations in their markets as a whole they are forecasting a drop of 8% from last year. An interesting observation is that these conservative projections are given in spite of the 15% pickup that the industry enjoyed in the first quarter.

More worried than Hurt

The dealers are being worried over increasing gas competition more than they are being hurt by it in the early stages.

This point is emphasized in the next part of the study. We asked them what share of the new home automatic heating market in their communities was done by gas last year, and what share they think will be done this year. Our figures exclude the Pacific Northwest on this point. In the other sections of the country the reporting dealers say that gas took 52% last year, and they think it will take 55% this year.

By sections of the country the figures are: New England, 39% and 44%; Mid-Atlantic, 52% and 57%; Midwest, 59% and 60%.

Notice that the figures just stated were based only on the new home market. We next asked the group the same question—or how much gas took last year in the conversion market and what they think it will take this year. Again they are expecting gas to make headway. They estimate that gas took 44% of the conversion market last year and will take 48% this year.

It was noticeable, however, that those dealers reporting from cities that have co-operative advertising programs for oil heat were considerably more optimistic. Only one such dealer in the reporting group expects gas to make headway against our industry, each of the others reporting from the campaign cities expects gas to lose ground this year.

Oilheating dealers over the country say they are spending about 7% more this year in selling costs directed toward oilheating equipment, only. The high point is an increase of 17% in New England; and the low point in this score is the Midwest where there will be no change over last year.

We next asked the group, or rather those among them selling fueloil, what share of their new oil customers in 1955 came directly from their own sale of oilheating installations. The composite answer on this was 26%. The high point was in New England at 43%; then the Pacific Northwest scored 33%; the Mid-Atlantic states 29%; and the Midwest 8%.

The practice among fueloil marketers of having the same man sell both heating equipment and oil is quite deep-rooted. We find that 71% of equipment that is sold by fueloil distributors comes in through the regular oil salesman. The high point on this is reached in the Mid-Atlantic states at 84%; and the low point in Pacific Northwest with 20%.

Half pay Commission

A little more than half of these oilheating dealers pay a commission on the sale of equipment; and also a commission on the fueloil volume that the man develops this way. The high point in this practice was in New England where 73% of the reporting companies paid a double commission.

Next we learned that where the salesman is paid a commission on the fueloil burned by the equipment he sold the chances are that he will continue to get this commission as long as he can hold this account. This practice is far from universal, but 53% of the dealers give the man this continuing income arrangement.

To conclude this 1956 sales analysis we asked if the dealer's market has in operation or contemplation a co-operative advertising campaign to push oilheating. A little more than half reported in the affirmative. Then we checked on whether they believe the campaigns now running are getting results in larger sales and the vote was five to one that they are.

Typical impressions on 1956 sales are these: "Replacement sales are becoming an increasing percentage of our total each year; gas is getting only about 10% of the replacements in our market; the latest oil increase has not helped our equipment sales." . . . "The industry in our market is badly demoralized as to any co-operative effort." . . . "Unfortunately a lot of gimmick selling—five years free service, undersizing units—some companies selling units with no thought of future service."

"We get more customers through our burner service." . . . "So far we are ahead of last year and prospects look wonderful." . . . "One local factory closed and another cut its force 50%; that's why our forecast was very uncertain." . . . "The local utility just published an ad claiming its fuel is equal to 11¢ oil while our price is 14¢."

"If our New York advertising program goes over 100% we will definitely increase burner sales by 15%." . . . "Fueloil should be advertised more as the gasoline brands are—billboards, etc." . . . "We will have to work harder to keep up our equipment volume, but I'm sure it will be done."

"Peculiar gas situation in Indianapolis—converting from 625 Btu gas to 800 Btu; the Utility expects to add 3,000 residential heating accounts." . . . "We are going to have to work harder to match 1955 sales." . . . "Look for heavier percentage of our volume in replacement field; our market will gain against gas."

❖

Fred M. Dygert Sales, Grand Rapids, Mich., now direct sales representative for Silent Korth oilburners and Korth boiler burner units made by Eckhart Mfg. Co., Inc., Union, N. J. Territory includes all of Michigan excepting Detroit and the upper peninsula.

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TANK VENTS

There's a Vapor-Saving OPW Tank Vent for every purpose. They are your INVESTMENT against high volatile vapor loss due to product expansion and temperature variation. Weighted to specifications, they trap and hold vapors and release only at set pressures, which insure maximum protection and dollar dividends. Double mesh screen . . . readily accessible for inspection prevents flame from following vapor into tank maintains bulk storage safety at the highest level.

OPW No. 95—precision machined, product engineered for lifetime use, characterizes the rugged, simple construction common to all OPW Tank Vents. Available: 2" - 3" - 4" - 6" - 10"

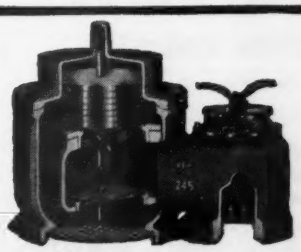
Send for the OPW Tank Venting and Emergency Relief Recommendation Chart!

OPW MANUFACTURES VENTS FOR ALL SIZES and TYPES OF TANKS

Small Home-Storage Tanks | **Farm Skid Tanks** | **Under-ground Storage Tanks** | **Above-ground Storage Tanks**

No. 209

Emergency escapement vent, for relief of pressure only. Used in conjunction with vacuum vents.



No. 245

Combination pressure, vacuum vent. 4", vacuum ½ ounce-pressure, 2 oz. to 2 lbs. 6", vacuum ¼ ounce-pressure, 1½ oz. to 1 lb.

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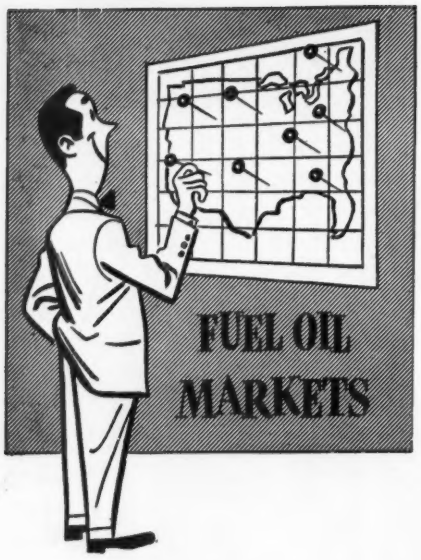


THE PRICE TABLE this month had only three minor changes. At Providence the tank wagon price was down one tenth. At Minneapolis tank car price was off a quarter of a cent to 10.75. At Des Moines the tank wagon price went two tenths to 14.5.

Fueloil prices at all levels have stayed quite firm through the spring months, and this is particularly impressive when they hold up at the Gulf Coast. Some marketers anticipate a break in the tanker and barge price before the end of April, and are adjusting their stocks accordingly. But refiners generally are inclined to believe that the present market will hold.

Gasoline prices, on the other hand, have been particularly soft which can only serve to make the refiners appreciate more their distillate fueloil volume.

The degree-day table continues to be of considerable interest. March was a cold month in most Eastern cities, and in the upper Mississippi Valley.

In the ten cities listed in the New England and Mid-Atlantic regions the season to the end of March was 4% colder than normal.

Among the 15 Midwestern cities shown in the table only one, Chicago, was warmer than normal, and the other 14 were colder. Throughout the region as a whole the season to March 31 was about 5% colder than in a normal year.

The Pacific Northwest cities averaged 12% colder than normal—so that it would appear that fueloil men everywhere enjoyed a good season.

No. 2 Heating Oil (Including No. 3 & PS200)

Price per gallon as of April 16, 1956

	Tank Car	Tank Wagon		Tank Car	Tank Wagon
Portland, Me.	10.8	14.5	Richmond	11.0	14.2
Boston	10.7	14.6	Charleston, S. C.	10.7	13.9
Providence	10.7	14.5	Chicago	11.2*	14.6
Springfield, Mass.	10.95	14.5	Detroit	11.75*	15.2
Hartford	10.95	14.5	Cleveland	11.6*	14.6
New Haven	10.6	14.2	Minneapolis	10.75	14.3
Syracuse	11.6	14.8	St. Louis	10.9*	14.4
Albany	10.9	14.2	Indianapolis	11.6*	15.1
New York	10.6	14.7	Milwaukee	12.5*	15.5
Newark	10.6	14.1	Des Moines	..	14.5
Philadelphia	10.6	14.0	San Francisco	10.65*	13.2
Harrisburg	..	14.6	Portland, Ore.	11.25*	13.8
Baltimore	10.6	14.15	Seattle	11.25*	13.9
Wilmington, N. C.	10.7	14.0	Spokane	13.65*	16.3
Washington	..	14.65	Los Angeles	10.15*	12.7

*Delivered.
Tank wagon prices shown are for maximum one-time delivery discounts.

DEGREE DAY TABLES

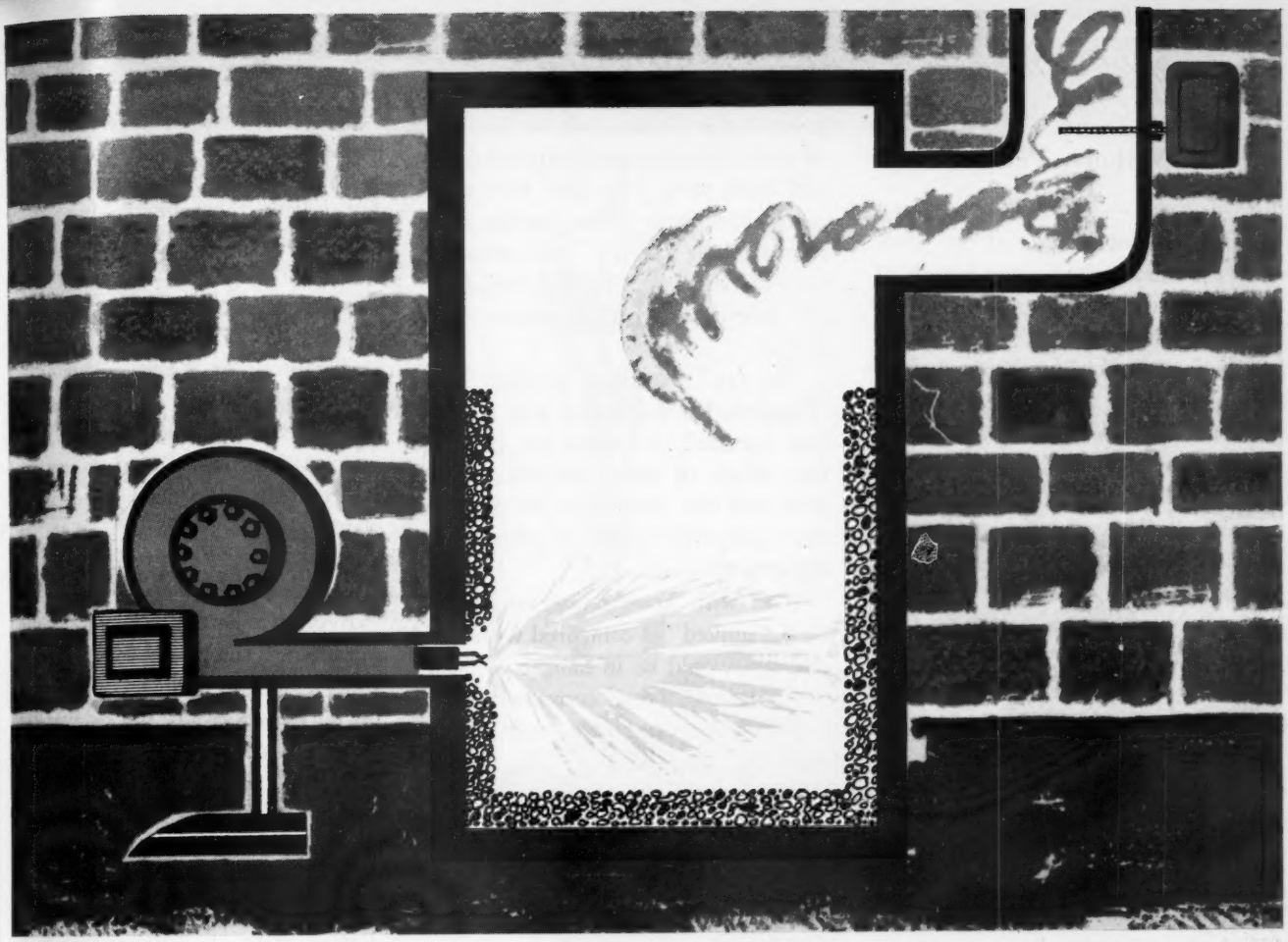
—ONE MONTH ONLY—					—SEASON TO DATE—			
	March		Percent		Sept. through Mar.			Percent
Normal	1955	1956	Change*		Normal	1955	1956	Change*
989	982	1145	+15.8	Albany AP	6045	5866	6306	+ 4.3
404	304†	348	—13.9	Atlanta AP	2673	2695†	2703	+ 1.1
676	620†	749	+10.8	Baltimore AP	4289	4623†	4445	+ 3.6
849	841	966	+13.8	Boston AP	4972	4793	5217	+ 4.9
992	959	1062	+ 7.1	Buffalo AP	5769	5530	5857	+ 1.5
868	854	878	+ 1.2	Chicago AP	5516	5155	5455	— 1.1
645	611	680	+ 5.4	Cincinnati CO	4110	4324	4491	+ 9.3
874	812	891	+ 1.9	Cleveland AP	5196	4985	5293	+ 1.9
288	276	244	—15.3	Dallas AP	2197	2095	2244	+ 2.1
843	878	764	— 9.4	Denver AP	5240	5111	5021	— 4.2
868	902	916	+ 5.5	Des Moines AP	5745	5646	6213	+ 8.1
927	900	1003	+ 8.2	Detroit AP	5527	5328	5614	+ 1.6
939	939†	1076	+14.6	Grand Rapids AP	5602	5411†	6087	+ 8.7
871	874	1066	+22.4	Hartford AP	5365	5187	5658	+ 5.5
1017	1357	971	— 4.5	Helena AP	6898	7008	7454	+ 8.1
184	162	141	—23.4	Houston AP	1352	1215	1209	—10.6
772	751†	763	— 1.2	Indianapolis AP	4973	4882†	5104	+ 2.6
666	657	613	— 8.0	Kansas City AP	4477	4176	4593	+ 2.6
212	142	150	—29.3	Los Angeles CO	1235	1034	1246	+ 0.9
611	542	584	— 4.4	Louisville AP	4055	3982	4069	+ 0.3
983	1021†	1036	+ 5.4	Milwaukee AP	5972	5838†	6147	+ 2.9
1057	1211	1204	+13.9	Minneapolis AP	6919	6957	7626	+10.2
163	127	103	—36.8	New Orleans CO	1156	1131	1146	— 0.9
753	733	836	+11.0	New York CO	4423	4362	4553	+ 2.9
831	880	841	+ 1.2	Omaha AP	5559	5347	6067	+ 9.1
667	632	795	+19.2	Philadelphia CO	4061	4019	4246	+ 4.6
735	656	759	+ 3.3	Pittsburgh CO	4496	4426	4628	+ 2.9
1039	1065	1213	+16.7	Portland, Me. AP	6406	6069	6596	+ 3.0
515	686	589	+14.4	Portland,Ore. CO	3500	3529	3848	+ 9.9
874	861	986	+12.8	Providence AP	5213	4967	5365	+ 2.9
588	506	588	0	Roanoke, Va. AP	3782	3945	3976	+ 5.1
620	611	589	— 5.0	St. Louis CO	4098	3999	4238	+ 3.4
741	871†	694	— 6.4	Salt Lake City AP	5099	5549†	4942	— 3.1
317	311	346	+ 9.1	San Francisco CO	1996	2114	2133	+ 6.9
1302	1379	1381	+ 6.1	Sault Ste. Marie AP	7671	7378	7505	— 2.2
558	721	669	+19.9	Seattle CO	3595	3598	4126	+14.8
905	869	961	+ 6.2	Toledo AP	5522	5307	5738	+ 3.9
619	549	668	+ 7.9	Washington AP	3923	3876	4033	+ 2.8

*Compared with normal. †City Office.

Distillate Fueloils

PRIMARY STOCKS* (Thousands of Barrels) East of Rockies			SECONDARY STOCKS** (Thousands of Barrels)		
	Apr. 13 1956	Apr. 15 1955		Dec. 31 1955	Dec. 31 1954
East Coast	18,877	23,225	East Coast	9,375	10,591
Midwest	17,529	17,047	Midwest	5,924	5,687
Gulf Coast	14,492	12,649	Gulf Coast	723	644
			Mountain	523	511
			Pacific	991	1,243
Total	50,898	52,921	Total	17,536	18,676

*American Petroleum Institute. **Bureau of the Census.



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This ASHLESS stabilizer leaves no deposits to cause ignition or control failures

DuPont Fuel Oil Additive No. 2 (FOA-2) is nonmetallic . . . ashless!

This means that it leaves no shorting deposits on the electrodes of the burner system . . . or deposits which interfere with the operation of stack controls or other controlling mechanisms.

Thus, heating oils stabilized with FOA-2 can help you minimize those bothersome service calls that cost your distributors time and money ...and often loss of business through customer dissatisfaction.

Prevents AND disperses sludge

FOA-2 prevents screen and filter clogging by retarding the formation of insoluble residues and by reducing the particle size of residues that are formed. It gradually disperses sludge that has gathered—tending to help rid dirty systems of deposits that already exist.

Its stabilizing action keeps fuel oil stocks gum-free for exceptionally long storage periods.

For best results . . .

DuPont FOA-2 should be added to freshly prepared stocks *at the refinery*. It can be used economically because it is low in price as well as being effective in low concentrations.

For the distributor of heating oils containing FOA-2, it offers many advertising and sales promotion advantages . . . pays off in greater customer satisfaction and reduced service calls.

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Government Influences on Fuels

by
Milburn Petty

WASHINGTON — Federal Power Commission, by imposing "end use" controls on natural gas for the benefit of the coal industry—in the Black Dog Case—is promulgating "a new national fuels policy" without congressional approval.

Such was the argument of attorneys for Northern Natural Gas Co., seeking a rehearing on FPC's order denying the pipeline company's application to build 1.42 miles of line to supply gas to the Black Dog Generating Station of Northern States Power Co., near Minneapolis.

This 3-to-2 decision by the FPC held that burning natural gas to make electricity was an "inferior use." This was denied by Northern Natural.

"The gratuitous characterization of the use of natural gas in the generation of electric energy as 'inferior' does not, in fact, make that use inferior," the company said.

"The generation of electricity is, indeed, the highest known use to which fuels may be put today. Certainly, the use of gas for that purpose is on a par with its use to make hot water or steam for heating—or even for space heating."

Coal Seeks 'End Use' Controls

The gas pipeline assailed the FPC's declaration that the "limited" quantities of natural gas as contrasted with "the enormously abundant supplies of coal, have important implications for the public interest, which we cannot ignore in passing upon a proposed boiler fuel sale."

The FPC, in trying to equate conservation with "end use" controls over competitive fuels, according to Northern Natural, is adopting a new fuels policy that Congress has, so far, refused to approve—despite the advocacy of such a policy by coal, union and railroad interests.

Coal and these allied groups "seek to obstruct" the use of gas, the FPC was told.

"If, under the guise of a concern for conservation, they can persuade Congress or this Commission to eliminate off-peak, interruptible industrial pipeline sales, they will have won their competitive battle," the pipeline said, because long-distance transportation costs for gas would be prohibitive for just heating and other domestic purposes."

"So far," Northern pointed out, "Congress has refused to pass legislation intended to restrict the public's free choice of fuels. Likewise, Congress and the courts have recognized that gas conservation is properly a matter for the states."

(Oil, with known reserves in the U. S. "limited" as compared with coal reserves, would be in danger of "end use" controls, too, if consumers were required to utilize the "most abundant" fuel available.)

FPC Moves in on Gas Producers

Meanwhile, the FPC is moving cautiously to extend controls over producer prices for natural gas, now that hope has been virtually abandoned for another attempt at legislation to exempt producers from FPC's jurisdiction.

Effective July 1, the FPC is proposing to outlaw all price escalation clauses in new contracts—except for periodic raises and those resulting from tax increases.

As for existing contracts between producers and gas pipelines, the big question is whether the FPC will decide that the Supreme Court's decision in a recent case—involving the Mobile Gas Company—requires that the Commission give effect to price escalation clauses that were included in contracts filed with FPC, and approved before the Phillips Decision.

Gas Utilities Offer Olive Branch

There are growing indications that the gas distributors, who fought the Harris-Fulbright Gas Bill (vetoed by President Eisenhower), would like to make peace with the producers.

Perhaps they anticipate that gas supplies for interstate movement will be tighter, with federal control still hanging over the production branch.

Latest move came from Randall J. Le Boeuf, Jr., lawyer for Consolidated-Edison, who was a leader in the fight against the gas bill.

He suggests legislation that would let FPC keep a string on producers but relieve them of the burdens of regulation; also, FPC would be required to accept initial contract prices as negotiated, with right to reopen at five-year intervals to determine whether the producer is then receiving less or more than the "fair commodity price." Since the contract would be open to revision at stated intervals, he said there was no need for escalation clauses.

Producers Ask Crude Price Hike

Replies to letters sent to crude oil purchasing companies by the Texas Independent Producers & Royalty Owners Association, urging that each raise its crude price postings by at least 60¢, have been non-committal, according to W. E. Turner, secretary to TIPRO.

He said several replies commented that the present supply picture raises doubts as to the advisability of increasing crude prices.

Undoubtedly, if crude prices advanced while Congress was in session and refined product prices reflected the increases, there would be a howl.

Says Oil Imports Affect Price

If there is "too much" crude now, imports are to blame, Turner said. So, it may be necessary for producers to tell ODM Chief Flemming that imported crude is not only "supplanting" domestic crude in U. S. markets but is holding down domestic crude prices, lessening the incentive required to find and develop the reserve productive capacity needed for defense, the TIPRO secretary argued.

On the other hand, Flemming's position is believed to be that progress has been made in the "voluntary" program to limit oil imports to the 1954 ratio with domestic production, although there is still room for greater compliance by some importers.

However, with coal production holding at 30% above 1954, and residual imports down, it is more likely that Flemming would favor liberalizing the policy on residual imports.

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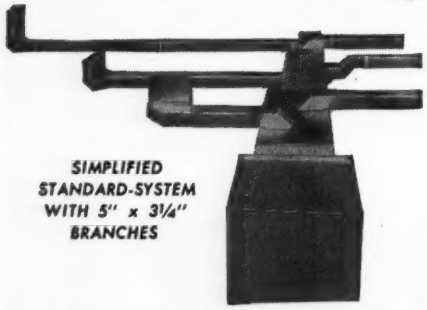


SIMPLIFIED STANDARD-SYSTEM WITH 5" x 3¼" BRANCHES

Duc-Pac, first to offer flat duct and fittings for *modern* perimeter installations! Set the pace in your area . . . provide your customers with this new, modern design for perimeter heating or cooling — on both new and home improvement installations.

Duc-Pac unassembled fittings feature "press-together" assembly that requires only *seconds*. Patented Inner-Lock eliminates unsightly "hammered-over" edges.

NEW INSTALLATIONS

Compact, neat-appearing Duc-Pac installations complete the truly "modern" appearance of new homes. 5" x 3¼" duct permits easy between-the-joists installation . . . flat design conforms with architecture of the home.

HOME IMPROVEMENT

Duc-Pac duct and fittings are "naturals" for "Operation Home Improvement". Ease of installation, space-saving design, trim appearance pre-sell your prospects, create satisfied customers. Let Duc-Pac help you make "'56 the Year to Fix".

OPERATION '56 the year to Fix HOME IMPROVEMENT

Request free descriptive bulletin.

DUC-PAC, Inc.
EAST LONGMEADOW, MASSACHUSETTS

OHI Exposition nears Sell-out; Convention Program about set

NINETY-THREE PER CENT of all available exhibit space has been sold for the 21st National Oil Heat and Airconditioning Exposition, which opens June 11 and runs through June 15 at the new New York City Coliseum.

R. S. Bohn, Preferred Utilities and chairman of the Show Committee, is confident that in view of the "Inquiries for space coming in daily, it is expected that our Show will be sold out well before the opening day." At the beginning of April there were 142 exhibitors who had been assigned space. Oil-Heat Institute of America sponsors the Exposition; Ralph Becker is its managing director.

The Exposition, which is occupying the third floor of the Coliseum, will include exhibits illustrating the development and progress of the oilburning industry or the electrically-operated cooling industry. Forty-one exhibit hours have been scheduled. The Show opens on Monday June 11 at 1:00 P.M. and closes at 10:00. The same hours are observed on June 12, 13 and 14, with the last day, Friday, June 15, featuring the final five exhibit hours between 1:00 and 6:00 P.M.

Convention at Park Sheraton

The Institute's 34th annual convention will run concurrently with the Exposition, with headquarters established in the Park Sheraton Hotel, just a block south of the Coliseum. After a day devoted to OHI business sessions, the convention program will concentrate on management conferences; these are open meetings to which all members of the industry are invited. They are held in the mornings to avoid conflict with attendance at the Exposition. A registration fee of $1 has been set for admission to the conferences, but the badge which this buys also admits the wearer to the Exposition.

Tuesday, June 12 will feature meetings for the equipment and accessory manufacturers, engineering and technical personnel. Then, the next two days, June 13 and 14, have been set aside for domestic dealer management conferences. Programs for both days are being arranged to interest dealers selling, installing and servicing residential oilheating and cooling equipment.

Consumer Film ready

A special feature of these Distribution Division sponsored sessions will be showings of the new consumer promotional film on oilheating, entitled "Housewarming Party." The 13½ minute film tells the story to the general public of the many advantages of automatic oilheating, pointed at the new home buyer, and homeowner and the builder. In interesting narrative form it recounts the story of a young couple holding their first housewarming party in their modern, new home. Interwoven with this is the story of automatic oilheating and its benefits.

The film, sponsored by the Institute's Distribution Division, will be available for public and groups showings after May 21, with copies offered for black and white or full color showings to Rotary, Lions, Kiwanis and other club or social groups. Prints may be bought or rented.

Present plans call for showing the film on approximately 300 television stations throughout the country between July 1 and December 15. The film is the first over-all national piece of promotion developed for the oilheating industry.

In addition, new service-installation film strips will be shown. These, too, will be made available to local groups on a rental or purchase basis, including projection and sound equipment. Then a 45-minute sound film strip will be shown, dealing with management, accounting and degree-day procedures.

Finally, a variety of subjects are scheduled for panels and round table discussion to round out this two-day intensive program covering the many facets of dealer management.

"*and how my dad sells* Thatcher!"

"Saturdays I help dad out at the store. Mostly cleaning and things like that. Most our customers come in on Saturday. Dad tells them a whole lot about Thatcher. He says there's a whole lot of good things to tell. Seems like nearly everybody ends up buying one. Yessir, Thatcher's a great line to handle . . . it must be, my dad says so!"

Here's why you'll do better with Thatcher, too!

You're In Business All Year Round With THATCHER. Complete winter heating and summer cooling lines make every season a selling season!

You're In Touch With More Prospects . . . You Close More Sales With THATCHER. New power-packed sales-building program is ready and set to go to work for you!

You've Got The Extra Edge On Competition With THATCHER. More experience in manufacturing heating equipment and building consumer confidence *than any other company in the field* . . . 10 year product guarantee . . . and other plus-features help you clinch the sale!

Your Business and Personal Interests Are Properly Advanced With THATCHER. Complete personalized assistance program is geared to consider your sales problems individually . . . to work with you on the special needs of your market . . . and to provide fast action in every situation!

Why not make your sales job easier . . . more profitable . . . with Thatcher. Get the full story today! Write Thatcher Furnace Company, Garwood, N. J.

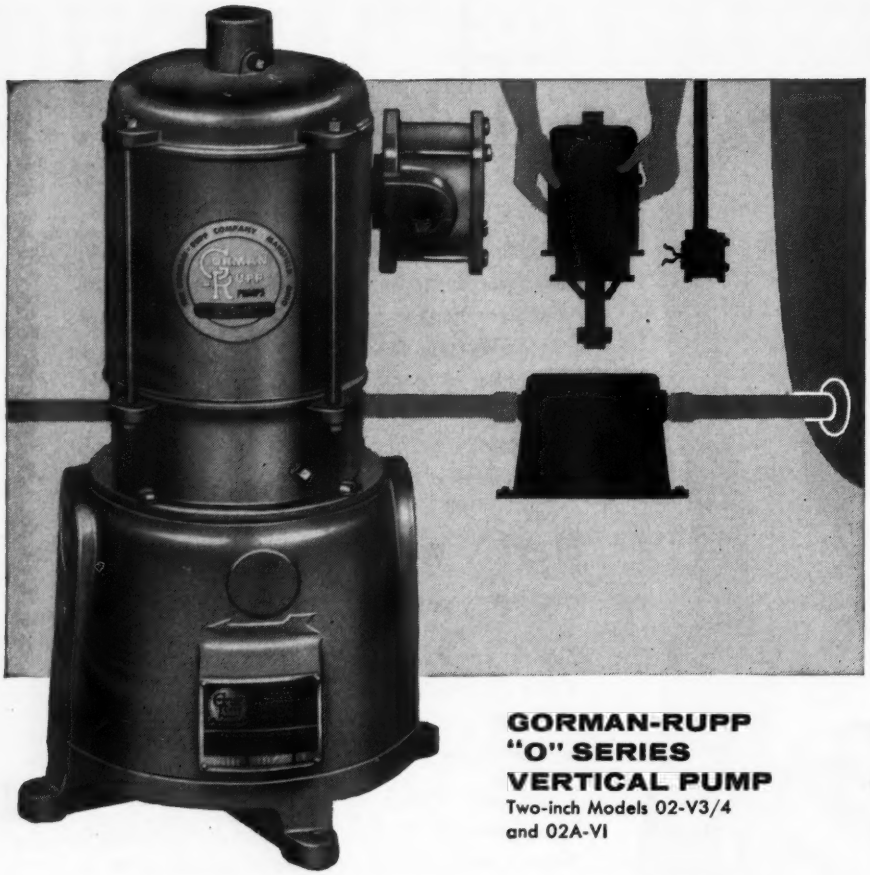
Thatcher
FURNACE COMPANY
Specialists in heating Since 1850

Garwood, New Jersey

Branch office: 4646 W. Washington Blvd., Chicago, Ill.

The Oldest Name in Indoor Comfort

fueloil & oilheat

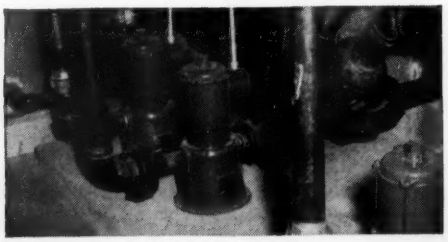


GORMAN-RUPP "O" SERIES VERTICAL PUMP
Two-inch Models 02-V3/4 and 02A-VI

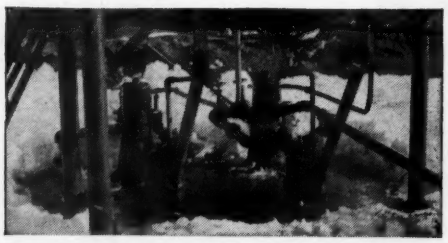
DON'T BREAK THE PIPING!

Cartridge Design Permits Rapid Field Service Without Disconnecting Pipe or Excess Spillage.

Versatile is the word for this Gorman-Rupp model! Its vertical design asks only a single sq. ft. floor area. Its cartridge construction allows pump and motor to be removed and exchanged without breaking the piping. And it's another in the famous Gorman-Rupp "O" series *centrifugal pumps that prime.* That means high efficiency, dependable operation and exclusive safety features. No check valve. Straight-through piping. Covered by the Gorman-Rupp plain-language guarantee.



BOTH PUMPS pull blending oil from delivery transport to storage tank. By changing valves, they then transfer it to weighing tank.



100 G. P. M. are delivered by these pumps through 2″ meters, loading truck tanks, pumping from transports and filling bulk storage tanks.

The Gorman-Rupp Company
305 BOWMAN ST. • MANSFIELD, OHIO

A commercial-industrial oilburning program is being set up for June 13, designed to interest architects and consulting engineers in the commercial-industrial heating field. The two-part program will open with a morning meeting, pause for a cocktail-buffet, and resume with an afternoon meeting. Primary subject slated for discussion is the OHI standards for commercial-industrial burners and their relationship to UL 296.

Institute Luncheon

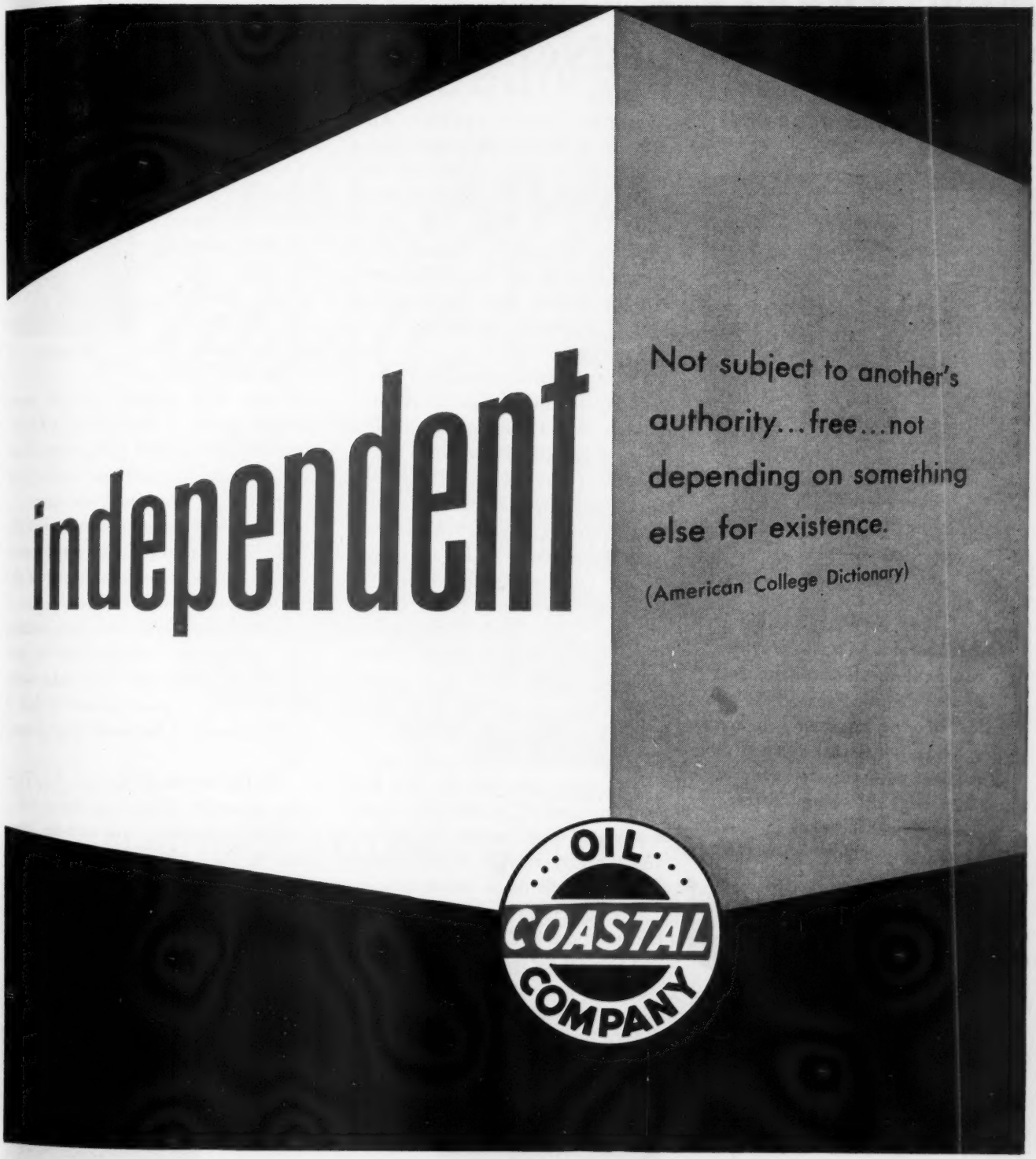
There is to be an OHI luncheon on Thursday, June 14, at the Sheraton-Astor in New York's Times Square. Besides featuring a nationally-known guest speaker, during the luncheon awards will be made for outstanding service to the Institute and industry.

For the ladies who attend the Exposition and Convention, OHI is setting up a special lobby on the mezzanine floor of the Park Sheraton, where they can get advice on what-to-do and where-to-go separately or with groups, all at reasonable prices. Possibilities range from sport—baseball or racing; museums; radio and TV shows; sightseeing trips and there's always shopping. In any event, the ladies are welcome and they'll no doubt enjoy themselves.

Fred Weldon is chairman of the convention committee, working with these subcommittee chairmen: Manufacturer-Accessory (Domestic), Stanley Czarnecki; Manufacturer-Accessory (Commercial-Industrial), J. V. Resek; Distribution Division, T. R. Loizeaux and Tom Hickey, co-chairmen; Engineering-Technical, Charles Suesserott and W. A. Sullivan, co-chairmen; OHI Luncheon, Shep Doherty, assisted by Tom Reed and William Bohn.

❖

Eugene Mitchell and *James W. Platt* have been appointed regional sales managers, of McDonnell & Miller, Inc., and will headquarter at the company's home office in Chicago, Ill. *Fred Rohe* has been appointed district manager for the state of Indiana and western Kentucky, the territory previously served by Platt. He will work out of offices in Indianapolis.



Does the most for the Independent Fuel Oil Dealer

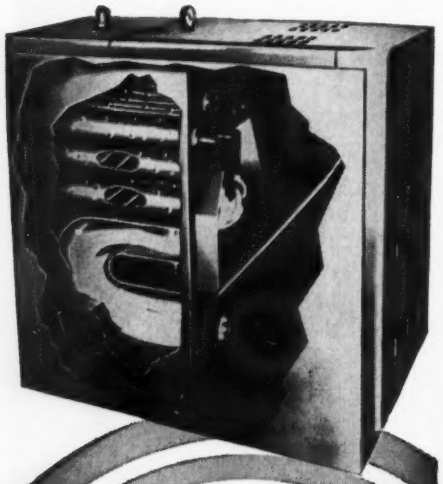
COASTAL OIL COMPANY

EXECUTIVE OFFICES · 744 BROAD STREET, NEWARK 2, N. J.

fueloil & oilheat

23

THE
NEW YORKER
HORIZONTAL BOILER
...offers you top efficiency and economy!



The NEW YORKER horizontal tube boiler provides top heating efficiency because of its scientific "three-pass" design, offering maximum heat transfer and lowest stack temperature. All heat passages are surrounded by heat-absorbing surfaces. Beautifully jacketed in blue-and-gray hammertone finish.

- Oversize, large capacity tankless water heater.
- Fire-tubes of extra heavy gauge steel.
- Pre-cast combustion chamber withstands temperatures up to 3200° F.
- Fire-tubes easily accessible.

Send coupon NOW!

New Yorker Steel Boiler Co., Inc.
Colmar, Penna.

Gentlemen:
Please rush me full information and prices on the New Yorker horizontal tube boiler!

Name .....

Street .....

City ..... State .....

Type of Business .....

Dwelley elected President of New England Institute

AT THE ANNUAL MEETING, April 12, of the Oil Heat Institute of New England, held in the Hotel Somerset, Boston, A. L. Dwelley, Automatic Corp. of Mass., was elected president; Marcel A. Fugere, Manchester Coal & Ice Co., Manchester, N. H., became first vice-president. Fred N. Beckwith continues as executive secretary.

Other directors elected for three-year terms included: Charles Andrias, George W. Pickering Co., Salem, Mass.; Edward S. Bliss, Bliss Oil Co., Fall River; George F. Corsiglia, George G. Corsiglia Co., Greenfield, Mass.; Don P. Hobbs, Morton Oil Co., Malden, Mass.; Herve A. Lagace, Lagace Service Oil Co., Woonsocket, R. I.; Raymond D. Nelson, Avon Coal & Oil Co., Avon, Mass.; Max Seltzer, Seltzer & Co., Allston, Mass.; Charles B. Stone, C. B. Stone, Inc., Middletown, Conn.; Lou R. Sweatland, Pittsfield, Mass.; George M. Wingate, F. S. Wingate Co., Inc., Hallowell, Me.

The entire program for Oil Heat Day on April 12 included the annual meeting of the Institute, a luncheon and seminar, with the annual banquet concluding the day's activities.

The luncheon seminar considered the question, "What sells oil Heat?" and heard three speakers who discussed various phases of the topic. Highlights of the talks follow.

First speaker was R. F. Horan, merchandising manager, Perfex Division, General Controls Co. Discussing "Organizing and educating a sales Force," he pointed out that selling is an art, not a science. Essentially, the complete sale consists of prospecting, presentation and closing. Or, in more graphic terms, a sale consists of visiting, story telling and persuasion. "Unless you find this combination in your new man, he won't be a salesman."

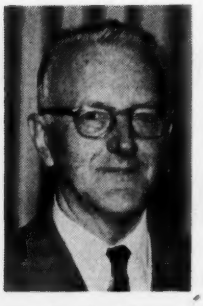
Horan

Further, Horan emphasized that the oilheating industry has grown because of the aggressive merchandising of the fueloil dealer, and, "Unless the fueloil people revive selling—not only heating but also cooling equipment—a new group of companies will take over. There exists a great potential, but it won't remain if neglected permanently."

On the important subject of recruiting salesman, Horan recommended a "blind" newspaper ad without identifying the company or the industry. This assumes that a prospective salesman answering the ad would be working in a business of his choosing if he really knew what he wanted. This text for a newspaper ad has been found successful:

"We seek a man who honestly and conscientiously is looking about for an

Augustus L. Dwelley
President



Beckwith
Executive Secretary

Marcel A. Fugere
1st Vice-president

Exclusive Selling Features of the *Thermostyled* *Classic* by DETROIT CONTROLS

CA-412

BEAUTIFUL STYLING . . . EYE-LEVEL READING

As new as tomorrow . . . that's what furnace manufacturers and dealers said when they first saw the Classic . . . and you'll agree with them the first time you install one of these smartly designed thermostats on your next job.

The satin-gold case and black dial with its easy-to-read numerals complements the color scheme of any room.

But enough about its beauty . . . that's obvious . . . what you want to know is how much does it cost and how easily it can be installed.

Yes, it looks like more money but it costs no more than other makes . . . and that's important to you, but equally as important is the fact that the Classic's wiring system is standard 2-wire low voltage—and it will practically replace any thermostat without wiring changes!

Now, add up these exclusive selling features of the Classic and compare them with other thermostats of any shape, size or style and we're sure you'll want to find out more about it by calling one of the Detroit Controls representatives in your district or writing us today for full information.

TIMED CYCLING Ends "HOT" and "COLD" Periods

Here is another Detroit Controls exclusive selling feature . . . Timed Cycling . . . the device that actually anticipates the heating needs of the home . . . controls room temperature within a fraction of a degree . . . provides the ultimate in heating comfort by eliminating over and under heating. Find out more about Classic, the "self-governing" thermostat, by writing for descriptive folder Form 1687 today.

YOU LIVE BETTER WITH **DETROIT CONTROLS**

DETROIT CONTROLS CORPORATION
5900 TRUMBULL AVE. • DETROIT 8, MICHIGAN
Division of AMERICAN-Standard

Representatives in Principal Cities • Canadian Representatives:
RAILWAY AND ENGINEERING SPECIALTIES, LTD.,
Montreal, Toronto, Winnipeg.

AUTOMATIC CONTROLS for REFRIGERATION
AIR CONDITIONING • DOMESTIC HEATING • AVIATION • TRANSPORTATION • HOME APPLIANCES • INDUSTRIAL USES

"No need to turn back
with a Never-Clog Vac"

you're IN . . . and out fast with a dependable

PULLMAN
NEVER-CLOG®
VACUUM CLEANER

The secret's in the new miracle Never-Clog filter bag, a *secondary* protective filter that keeps up full suction. Never clogs, even during the toughest jobs. Cleaning is almost automatic with this new miracle bag . . . completely wear-and-tear resistant. All parts are fully guaranteed for maximum full-time performance and *no* breakdowns.

You make MORE CALLS . . . MORE SALES . . . MORE PROFITS per day.

Your customers will be "sold on you" too, when you service them fast and efficiently with a Never-Clog Vac . . . and a "sold on you" customer is a perfect prospect for MORE *fuel oil sales*, MORE *worthwhile repair jobs* and *new installations*.

Pullman
THE WORLD'S LEADING SPECIALISTS IN FURNACE VACUUM CLEANERS

PULLMAN
VACUUM CLEANER
CORP.
25 BUICK ST.
BOSTON 15, MASS.

opportunity and a product to which he can feel fully justified in exerting his greatest efforts."

Other forms of recruitment can be undertaken through the dealer's customers—"You'll get about 6% of your applicants from this source"; by personal solicitation—"Phone a lot of people and tell them you need a man and ask for recommendations"; house-to-house calls by your sales supervisor—"Ask the lady of the house if she knows any good man who needs a job." And, "Remember. Don't worry about what you pay the salesman. No man worth his salt can't earn his commission from the public."

Then, Horan outlined some points the dealer can employ in selling the oilheating industry to the fledgling salesman: Heating is stable; there is no saturation of market; it's a perpetual market; there is a big unit of sale so that the salesman is not required to whip himself up to a frenzy every day; in contrast to industrial selling with its endless delays and frustrations trying to get to the right party, in oilheating the salesman sits face-to-face with the prospect who can say "Yes" or "No" right away.

Finally, Horan told the oilheating dealers, "Don't confuse the retail salesman with the way you sell!"

Donald P. Love, vice-president, Mid-Hudson Oil Co., Poughkeepsie, N. Y., explored ways of "Building fueloil Gallonage without price Cutting." Here are some informative statements he made:

Love

The average industry profit on fueloil sales is .99¢ a gallon so that, "if you give away half-a-cent you can see where you're going."

"Any customer that will come to you for a cut price, will leave just as quickly for somebody else."

Mid-Hudson Oil Co. has 5,000 retail fueloil customers now, with more than half created through burner sales. "The customers we get from burner sales, stay with us best."

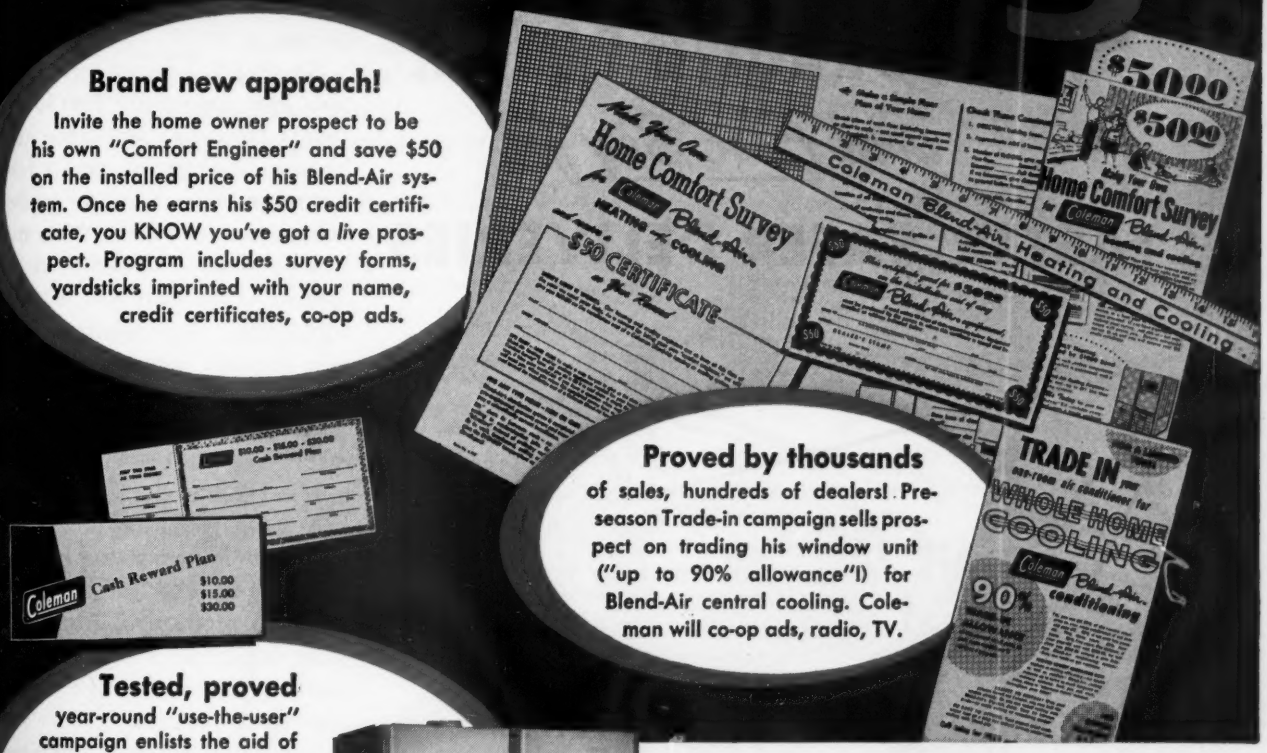
It costs Mid-Hudson $28 to create

Use these Coleman local promotions to BUILD A LIVE PROSPECT LIST

Plan NOW for a boom year in cooling

Brand new approach!

Invite the home owner prospect to be his own "Comfort Engineer" and save $50 on the installed price of his Blend-Air system. Once he earns his $50 credit certificate, you KNOW you've got a *live* prospect. Program includes survey forms, yardsticks imprinted with your name, credit certificates, co-op ads.



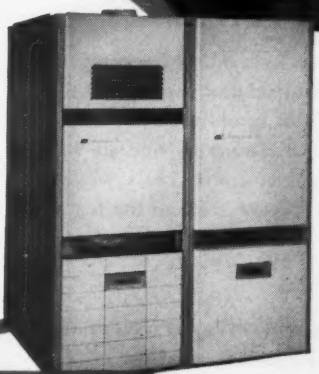
Proved by thousands

of sales, hundreds of dealers! Pre-season Trade-in campaign sells prospect on trading his window unit ("up to 90% allowance"!) for Blend-Air central cooling. Coleman will co-op ads, radio, TV.

Tested, proved

year-round "use-the-user" campaign enlists the aid of satisfied Blend-Air customers and others in searching out new prospects.

plus . . . many other ideas, ads, displays and direct mail. Tie-ins with national advertising in LIFE, Saturday Evening Post, Sunset Household and Small Homes Guide.



Use Blend-Air EXCLUSIVES to close more sales!

• **ONLY COMPLETELY PACKAGED SYSTEM** . . . prefabricated at factory to reduce layout time, eliminate costly shop work. • **INSTALLS IN HALF THE TIME** — smaller 3½-inch ducts save labor and inventory. • **COMPLETE LINE** of Vertical and Plenum Coolers to install with *any* heating. • **BEST HUMIDITY CONTROL** with exclusive Coleman blenders. • **LOWEST COST COOLING** to operate with exclusive Air-Mist evaporative condenser.

COLEMAN SINCE 1900
— makers of lamps, lanterns, camp stoves, home heating and air conditioning.

COLEMAN Vit-Rock® water heater...

backed by 10-year warranty and EXCLUSIVE $500 Bond . . . strongest guarantee in the industry! Only Coleman has the *rock lining that can't rust!*

MAIL COUPON TODAY for complete information!

The Coleman Company, Inc.
Dept. FOH-160, Wichita 1, Kansas

Gentlemen: Please send me complete information on Coleman Blend-Air cooling and the 1956 Coleman local promotions. I sell ☐ gas or LP-gas, ☐ oil heating equipment.

Name_____

Firm Name_____

Address_____

City_____ Zone_____

State_____

ROPER
HYDRAULIC POWER
your Best Buy for
FASTER, SAFER DELIVERIES
Hydraulic pump driven by the P.T.O. drives hydraulic motors on product pump and hose reel.

OPERATE PRODUCT PUMPS . . . HOSE REELS

Equip your fleet with new Roper Pump-Motors — the hydraulic power units designed especially for fuel transfer applications. Compact and rugged, these pump-motors offer greater *flexibility* and *convenience* of hook-up . . . operate at *slow speeds* . . . *increase* product pump life . . . are *less costly* to operate in the long run. Ideal for operating both product pumps and hose reels, you'll find Roper Pump-Motors your *best buy* in hydraulic power. Get all the facts . . . today!

COST-SAVING FEATURES

- Operates one or more pumps or reels
- Eliminates auxiliary engines
- System increases product pump life
- Explosion-proof at no extra cost
- Offers greater flexibility and convenience
- Power input is smooth, shockless
- Drives other-makes of pumps
- Convenient dual system for split loads

Write for Bulletin or see your Roper Distributor

GEO. D. ROPER CORPORATION
765 Blackhawk Park Avenue
Rockford, Illinois

ROPER Rotary Pumps

new accounts through direct solicitation. Burner installations in 1955 averaged a $35 loss each (the burner department bore the full weight of all administrative overhead), but, "We gained stronger and more loyal supporters."

The use of two-way radio will save Mid-Hudson getting one man and another truck this year.

We have three men selling both equipment and fueloil. Each averages 75 heating sales, plus 100 new oil accounts.

Another man spends virtually all his time cold canvassing for fueloil accounts. He visits every home in a new housing development, gets a few customers and then has these housewives helping him sell more. "We sometimes pick up as many customers in a development as the man who installed the equipment." This salesman sold 177 new accounts last year at an average cost of $25 per account.

"Discount is what you take off for cash!"

Mid-Hudson allocates 1% of $3 million gross sales for advertising. A keyed ad in the phone book telling prospects to "Ask for Mr. Howard," has been productive. Also, the company makes every effort to capitalize on the publicity value of company and community projects.

Get all employees sales-minded. Mid-Hudson pays $10 for lead on burner sales, $4 for a new oil account.

Final speaker at the seminar, Arnold Michelson, vice-president, Minneapolis - Honeywell Regulator Co., spoke on "What sells oil Heat," the theme of the gathering. He answered the question with the single word, "Salesmanship" and then elaborated on its implications.

Michelson

He pointed that the industry as a whole hasn't introduced in many years equipment that has more sales appeal, like automobiles. Nor, have we, as an industry, capitalized on the beneficial health aspects of oilheating. And, in general, oilburners are sold for too lit-

A BRANDED PRODUCT IS EASIER TO REMEMBER ...Easier to Sell!

That's why it pays you to sell Mobilheat—America's famous fuel oil brand. It's the fuel oil known to thousands of oil burner owners all over the country.

In addition, Mobilheat is backed by one of the greatest names in the petroleum industry—Socony Mobil, with 90 years of oil marketing and merchandising experience. Make it warm for your customers—"hot" for your competition with Mobilheat!

SOCONY MOBIL OIL CO., INC., and Affiliates: MAGNOLIA PETROLEUM CO., GENERAL PETROLEUM CORP.

SLOW RECEIVABLES

Got your head in a whirl?

THE ELDRIDGE

Streamlined

BUDGET PLAN

will definitely reduce your collection headaches to a minimum and also give you

...more working capital...

This complete, reasonably priced package deal . . . . includes customer literature, office forms and a "low priced" Remittance Packet which make it so easy and so convenient for your customers to mail in their Budget Payments on time.

write us for details

25 YEARS PROMOTING OUR OIL HEAT INDUSTRY

WM. H. ELDRIDGE

Advertising Service

87 MAYWOOD RD.
NEW ROCHELLE
NEW YORK

tle and too little attention is paid to the profit concept.

Basically, however, Michelson continued, our real competition is outside and we are vying for the consumer's dollar against Kodaks, phonograph records, cruises, insurance, TV and minks. "But none of these has built-in salesmen! Salesmanship sells, but your salesmen bring home the order or the competition's salesmen take the order away from your salesmen!"

"Salesmen do not fail," Michelson went on, "it is the 'sales managers' who fail. It is you the oilheating dealers, who must see to it that the 'success formula' is always applied and re-applied." Specifically, salesmen must be happy, "If his selling environment is right, it will make him create an atmosphere to buy"; the salesman is entitled to job security; he must have opportunity, "How high is up in his company?"; he must have adequate compensation in honest comparison with other jobs in the organization.

Summarizing, Michelson enumerated the five "R's" of selling: Regain faith in the product and confidence in the oilheating industry; Revive determination; Review methods and means; Revalue price, product, service and profit; Resolve to co-ordinate, collaborate, consolidate and co-operate, "because our industry must be strong to make each of us strong!"

Heating-Cooling Council has a four-way Promotion ready

THE BOARD OF DIRECTORS of the Better Heating-Cooling Council has approved a four-way promotional program as part of the Council's nationwide promotion of hot water heating and cooling for homes and small buildings.

Executive Director Franklin Greene explains that the four projects will be combined with the basic program of continuous publicity and promotion produced by the Council's staff. Each will stress the "Q" (for quality) Factor to stimulate fresh homeowner and builder interest in the benefits of baseboard, convector and radiant heating and cooling.

The Council's operation calls for

Better Heating-Cooling *Council directors and officers at recent New York board meeting.*

Seated *(left to right): Treasurer Robert E. Ferry, general manager, Institute of Boiler and Radiator Manufacturers; President John E. Reed, secretary H. B. Smith Co. and chairman, Sterling Radiator Co.; Owen Desmond, sales manager, Modine Mfg. Co.*

Standing *(left to right): John H. White, president, Taco Heaters; Robert S. Rickabaugh, sales manager, Tuttle and Bailey; Carroll Baumgardner, vice-president, National-U. S. Radiator; Daniel J. Quinn, vice-president, American-Standard; Virgil A. Good, Burnham Corp.; James M. Legg, vice-president, Federal Boiler Co.*

Not present: *Council Vice-President Paul K. Addams, president, Fitzgibbons Boiler; George L. Erwin, vice-president, Crane Co.*

NOW... Boiler installation is as simple as A-C-E!

More profitable, too, with the

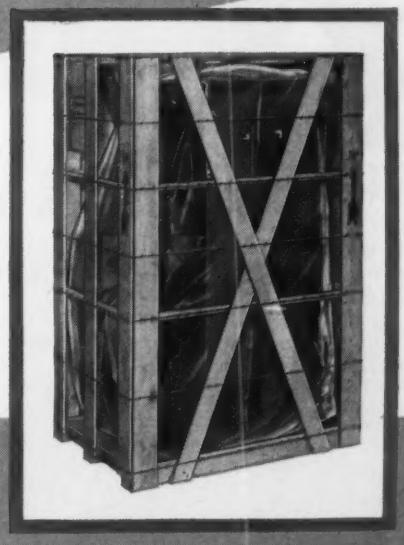
Utica

STARFIRE "ACE"

CAST-IRON OIL BOILER UNIT

ASSEMBLED at our factory, equipped with jacket, burner, tankless heater, circulating hot water pump and controls—completely wired and ready for your piping hook-up! (Also available without tankless heater.)

CRATED in a sturdy wood frame crate with a plastic cover that protects the entire unit during shipment. Simplified uncrating procedure allows you to position the boiler exactly where it will be installed before uncrating!



ENGINEERED exclusively for oil firing, with wet base and vertical flue travel for maximum operating efficiency. Finest quality equipment and controls. Lifetime cast-iron construction for years of dependable operation. Available in two sizes: 3 section boiler—445 sq. ft., hot water; 4 section boiler—610 sq. ft., hot water.

Get the complete facts on the Starfire "ACE", and see how you can save time and installation costs—make more profit on every job! Write for literature and prices.

UTICA RADIATOR CORPORATION
UTICA, NEW YORK
Member of the Institute of Boiler and Radiator Manufacturers

A.O.Smith

Permaglas®

makes profits easier

with the most ... most value-packed

HEATING and COOLING LINE

the industry has ever seen!

Here's a heating and cooling line that's practically **FUN** to sell! The striking exteriors of these new ***Permaglas*** units stop prospects—appeal to women as much as men.

But there's far more than looks here! You can easily show prospects that here is the only really *balanced* heating and cooling line they've ever seen, with heating and cooling units that have been engineered *together*, to work perfectly together, without compromise.

You can *show* them the A. O. Smith High Temperature Ceramic Coating, and prove to them easily how corrosion from high temperatures has been ended, and how rusting from the condensation that always goes with summer cooling has been stopped. The 10-year guarantee on the heat exchanger is a clincher!

Then you can tell them how exclusive A. O. Smith Modulation with the Magic-Heet Control (optional on gas-fired units) gives them full-time comfort instead of the heating in spurts that's always the mark of "on-off" heating. When you show them how the flame adjusts itself to heating needs, they're really SOLD!

And back of all this you have a complete line. Oil-fired and gas-fired warm air units. Gas-fired boilers. Conversion gas burners. Hi-Boys, Lo-Boys, Down-Flows, Horizontals. Year-round units for oil or gas. Horizontal, remote, or integral cooling units, too, for water or air in most cases.

All of it guaranteed by A. O. Smith with A. O. Smith Product Service Branches to provide nearby assistance and quick access to replacement parts.

You couldn't hope for more—and neither can your prospects.

Permaglas® is on its way

... Are You Aboard?

Sales Department, Permaglas Division
A. O. SMITH CORPORATION, Kankakee, Illinois Dept. FOH-556
Please rush me details about Permaglas Heating and Cooling.

Name.....Title.....

Company.....

Address.....

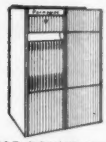
City.....Zone....State.....

Through research ...a better way

A.O.Smith
CORPORATION

Permaglas Div., Kankakee, Ill.
International Div., Milwaukee 1, Wis.

the only really balanced line ever built



YEAR-ROUND UNITS
Oil or Gas—100,000 to 160,000 BTU's. 2, 3 or 5 tons. Water or air.

VERTICAL COOLING UNITS
2, 3 or 5 tons. Water or air.

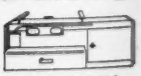
HORIZONTAL COOLING UNITS
2 or 3 tons.

REMOTE COOLING UNITS
2, 3 or 5 tons. Water or air.
3 evaporator arrangements.

HI-BOYS
Gas—70,000 to 200,000 BTU's.
Oil—0.75 to 1.75 gph.

LO-BOYS
Gas—85,000 to 200,000 BTU's.
Oil—0.75 to 1.75 gph.

DOWNFLOWS
Gas—70,000 to 200,000 BTU's.
Oil—0.75 to 1.75 gph.



HORIZONTALS
Gas—60,000 to 140,000 BTU's.

GAS CONVERSION BURNERS
120,000 to 345,000 BTU's

HOME HEATING BOILERS
Gas—110,000 to 420,000 BTU's.

... and every one competitively priced!

the following initial steps in the $100,000-plus promotion:

1. A Better Heating-Cooling Week to be held this summer to generate homeowner enthusiasm for piped heating and cooling. The Council has hired Tyndall Associates Inc., New York public relations counsel, to stage the Week, which will be tied in with the All-Industry Modernization Drive and will complement Operation Home Improvement.

2. A new half-hour color sound movie will tell the comfort story of piped heating and cooling. The film, aimed for living room viewing by homeowners on TV stations, will be available also for dealer, wholesaler, manufacturer and trade association showings.

3. A series of round table editorial conferences for consumer editors of all media to inform this mass-circulation portion of the press, radio and television and enable them to pass on to their readers or listeners what's new in the hot water and steam heating and cooling field.

4. A permanent six member staff of the Council to implement a complete public relations and publicity program on a continuous year-'round basis.

❖

Old Timers' plan Jamboree in New York City, June 12

THE ANNUAL JAMBOREE of the Old Timers' Club of the Oil Burner Industry, Inc., is set for June 12 in New York City during the National Oil Heat and Airconditioning Exposition and convention of the Oil-Heat Institute of America, Inc. The Henry Hudson Hotel, adjacent to the Coliseum where the Exposition takes place, has been picked as the site. Festivities get under way at 5:30 P.M., with paid up Old Timers privileged to buy a ticket for $10. This entitles them to dinner, includes gratuity and tax, plus entertainment—in short, the works.

Jim Owens, Chairman of the Old Timers' and H. A. Maccubbin, secretary, will inform members of the complete details as soon as they are worked out. Members can send dues and reservations to "Mac" at 120 West Madison St., Villa Park, Ill.

Joint Coliseum Display to promote Oilheating

THE SHOWCASE FOR BETTER LIVING, to be held May 12 to 20 at the New York City Coliseum, will witness the culmination of an ambitious co-operative promotion project when a 41 by 20 foot display, "How Oil serves your Home" is unveiled.

The display has been in the selling and planning stage for more than six months, originated by the Oil Heat Institute of Long Island, through its president Pat Caputo and actively pushed by John Harper, New York area chairman for the Oil Industry Information Committee. The OHILI, New York Oil Heating Association and the Oil Heat Council of New Jersey already have joined the plan, while at least four other area groups have the project under consideration. Significantly, co-operation and financial support have been extended by the OIIC.

Over-all theme of the display will trace the origin of oil, its discovery, drilling, refining, production, transportation and marketing. During the Coliseum exposition, sales promotional folders and information bulletins on oilheating will be distributed, along with novelty give-aways. The booth will be identified as "Sponsored by your friendly neighborhood heating oil dealer." Additional interest in the display will be stimulated by nightly door prizes.

A valuable aspect of the project is that the display material can be used locally by participating associations after the May showing, providing professional exhibits for home shows and similar uses.

❖

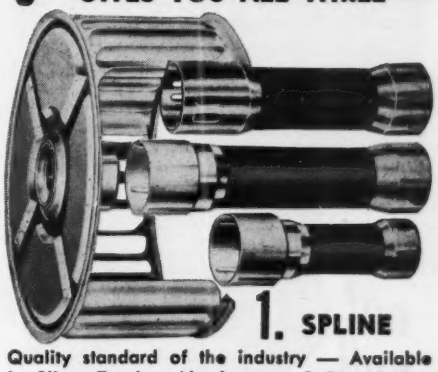
Pulsation research program Committee reports Progress

A RECENT REPORT from the Technical Division, Oil-Heat Institute of America, indicates that progress is being made on the research program investigating oscillations and pulsations in oil-fired equipment at the Battelle Memorial Institute.

The program is being sponsored jointly by OHI, American Gas Asso-

QUALITY is our business ..without *any* compromise

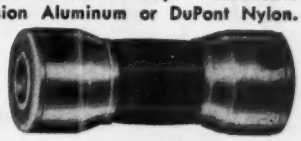
***AND ONLY Guardian* GIVES YOU ALL THREE —**



1. SPLINE

Quality standard of the industry — Available in Silent Tension Aluminum or DuPont Nylon.

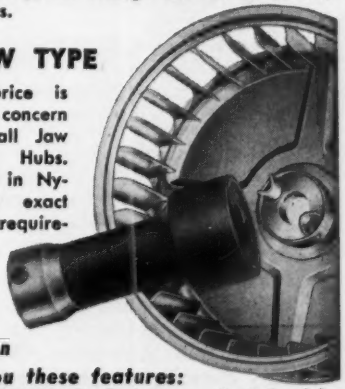
2. REGULAR



Ultimate to correct misalignment — Furnished in 1/6 to ¾ HP ratings for Oil Burner Requirements.

3. JAW TYPE

Where price is of prime concern — Fits all Jaw (Lovejoy) Hubs. Available in Nylon to exact length requirements.



Only Guardian gives you these features:

1. ROLL SPINNING—Exclusive method for joining all three components at one time—Actually made in position of final driving operation.
2. BRAIDED RUBBER—Ground to absolute true concentricity. Furnished with BUNA-N TUBE and NEOPRENE COVER. Holds to strict Lateral and Angular Alignment standards.
3. ONE-PIECE DESIGN—Minimizes assembly and handling costs—Cut to exact length requirements.

There are over 4,000,000 Guardian couplings on original equipment. This is your assurance of highest quality and enthusiastic acceptance in the field.

COUPLING SERVICE KITS

Standard and Economy Kits complete with bushings for replacement. Lengths and bores meet 95% of existing field requirements.

Write for literature and prices of Guardian's superior line of tank valves. Most complete in oil burner industry. Now with Fusible feature and Cast Brass for Price and Project requirements.

Guardian PRODUCTS CORP.
COUPLING DIVISION
Dept. F-56, 1231 E. Second Street
Michigan City, Indiana

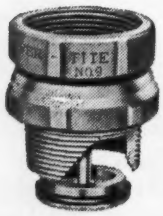
Hose Swivels with EVER-TITE precision

EVER-TITE No. 2 Straight Thru Swivel

When this new Ever-Tite Swivel is used between the hose and nozzle, kinking and twisting of the hose is eliminated.

Free swivel action at all times—with parts firmly secured. Hose strain is prevented because the swivel assures quick and easy positioning of nozzle.

The Ever-Tite Swivel is always leak-proof because of a specially-designed machined seal and gasket. It is constructed of heavy-duty durable bronze—precision-engineered for typical Ever-Tite performance.



EVER-TITE No. 9 Check Valve Swivel

Ever-Tite No. 9 Swivel has all the features of the No. 2 plus the additional advantage of an inlet check valve. When the pump is shut off, an "O" ring seals against a tapered machined surface and prevents the hose from draining. Spring tension is approximately 1½ p.s.i.

Let these precision Ever-Tite Hose Swivels save wear on your equipment as well as operators' time. Write or phone your distributor.

Send for Bulletin F-11

EVER-TITE COUPLING CO. INC.
254 West 54th Street, New York 19, N. Y.

ciation and the American Society of Heating and Airconditioning Engineers. The latter association is responsible for the administrative guidance of the program.

A steering committee headed by A. A. Marks and including H. R. Heiple, representing the OHI Technical Division, and D. W. Locklin, representing the OHI manufacturers, meets quarterly, usually at Battelle, where equipment can be observed and results can be discussed with research men.

For the laboratory oil-fired unit, the most important factors have been found to be the relative flow patterns of fuel, air and products of combustion; and the relative positions of the combustion zone.

Other important factors being studied are the frequency of oscillation and the position of the furnace relative to the pressure antinodes in the room, which usually occur near the walls.

Motion picture studies have been helpful, according to the report, in establishing the nature of flame disturbances which occur during different portions of the pulsation cycle.

The program was activated in June, 1954, with the objective being the supression of pulsations in existing field installations and the avoidance of pulsation conditions in new burner design. A technical paper prepared by the Battelle staff will be presented at a ASHAE meeting on the research.

❖

New Highs reached in steam and hot water heating Gains

FIGURES released by the Institute of Boiler and Radiator Manufacturers, New York, N. Y., indicate new highs in the sale of baseboard type radiation for home heating, with shipments in 1955 up 37.3%. Robert E. Ferry, general manager of the Institute, also reported gains of 13.7% in cast-iron boilers and 30.4% in industrial type finned tube radiation.

Other figures disclosed that of the cast-iron boilers shipped last year, 94.9% were automatically-fired and that hot water boilers constituted 79.3% of total shipments, steam boilers, 20.7%.

Ferry pointed out that these gains came in a year when residential construction rose only slightly, interpreted as an indication that the number of homes using hot water or steam heating systems is growing steadily. Ferry also pointed to the growing development of summer cooling equipment, usable in homes heated by hot water or steam. He listed these five basic types of compatible cooling systems:

Heating-cooling convectors, using the same piping system for both functions; heating-cooling baseboards, using the same piping system; cooling convectors with separate heating; attic cooling units with separate heating; self-contained room cooling units, using a piping system for heating. The latter three are particularly adaptable to older homes.

❖

Marketing Division Meeting has Program on Fueloil

THE MID-YEAR MEETING of the Division of Marketing, American Petroleum Institute, being held at the Atlanta Biltmore, Atlanta, Ga., May 21 to 23, is expected to be the biggest ever held.

J. G. Jordan, Shell Oil Co. and API vice-president for Marketing, points to workshops on current oil marketing problems as special features of the meeting program. In all, eight workshops are scheduled, sponsored by the various committees of the division. Programming will provide substantial time for audience participation and floor discussions of mutual problems.

A program, sponsored Monday morning, May 21 at 11:00 A.M., by the Division's Fueloil Committee, has been set up to review "Ten postwar Years in Oilheating." The three speakers and their topics will be: William A. Sullivan, Jr., Products Application Department, Shell Oil Co., New York, "Ten year Improvement in heating oil Quality";

Wiley Butler, president, Coastal Oil Co., Newark, N. J., "Ten year Improvement in economic Conditions of fueloil Distribution," and

Robert A. Collacott, public relations director, Standard Oil Co. of Ohio, "Ten year Growth of Oilheat-

TWO HEADS ARE BETTER...

ONE counter registers gross gallons; the other records gallons corrected to a true volume at 60° F. base. The Dual Head Adaptor with time-tested A. O. Smith Temperature Compensator permits you to dispense gross gallons and keep your inventory on a net-gallons basis—a boon to accounting. Recommended for loading racks, refineries, pipe lines. Write for Bulletin SD-61.

Illustrated: Model B-50 single case steel meter with large numeral counter on the gross extension and ticket printer on the net side. Mount any two counters you choose on either side. All counters are adaptable to the dual head.

Through research ... *a better way*

A.O.Smith
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METER PRODUCTS

Factories: 5715 Smithway St., Los Angeles 22, Calif.; P. O. Box 500, Succasunna, N. J. Offices: Atlanta, Chicago 7, Houston 20, Los Angeles 22, New York 17. Canada: Toronto 12, Vancouver 1. International Division—Milwaukee 1, Wis.

Sell yourself some
year 'round business
Every Metropac installation makes a year-round oil customer. Metropac and only Metropac puts water heating in summer months on an economy basis.
Metropac is a warm air heating furnace and a good one — and built into this furnace is a storage tank with the exclusive Metrofin coil unit — together they give efficiency, economy and fast recovery.
Metropac comes in five sizes to fit all home heating jobs — and for year-round air conditioning.
Satisfy your customers — put your oil business on a twelve-month basis.
Metropac
WARM AIR FURNACE
WITH BUILT-IN HOT WATER UNIT
Distributorships available in some territories
METROMATIC
MANUFACTURING CO.
15 Winchester Street
Medford, Mass.

ing in Ohio, a cheap gas State."

Vice-president Jordan, commenting on the workshops, explained that these sessions all will be held in a single room and will be scheduled one after another so that marketers will be able to attend them all. In general, the program for the May meeting separates the business sessions and the workshop sessions.

Arrangements for the Atlanta meeting were worked out by the Division's Program Committee, headed by Marc F. Braeckel, vice-president, Sinclair Refining Co., New York. G. Everett Millican, Gulf Oil Corp., Atlanta, headed a local committee on arrangements.

❖

Capper Magazines see Farm as prime heating Prospect

AGGRESSIVE SELLING can convert farm families into an outstanding market for modern heating equipment according to the research department, Capper Publications, Inc., Topeka, Kan.

Nearly every home reached by *Capper's Farmer* has electricity, mechanical refrigerators and modern kitchen ranges, and nearly three-fourths of them have pressure water systems. In contrast, less than half have central heating.

The researchers point out that the farmer has the income to invest in better heating equipment if he is sold. His debt is low and during the past decade he has invested heavily in many other conveniences for his home.

During the three years 1951-54 the magazine's subscribers bought five times as many television sets, twice as many food freezers as central heating plants.

But, during this period the subscriber audience gained 78,000 additional owners of oilburning heating equipment; 26,000 owners of gas-fired equipment and 19,500 owners of LP-Gas furnaces.

The report concluded that farm families can afford a comfortably heated home, but many of them do not know how much satisfaction proper heating equipment can offer. "There is still a selling job to be done."

OHI holds a technical, sales School in Richmond, Va.

A SCHOOL on oilburner service, installation and sales training, jointly sponsored by the Distribution and Accessory Divisions, Oil-Heat Institute of America, was held on May 1, 2, 8 and 9 in Richmond, Va.

The school, announced by Ben Weichers, chairman of the Domestic Education Committee of OHI, consisted of all day-sessions with these companies participating: Boston Machine Works; Bacharach Industrial Instrument Co.; General Controls Co.; Penn Controls, Inc.; Minneapolis-Honeywell Regulator Co.; Steinen Mfg. Co.; Sundstrand Machine Tool Co.; Webster Electric Co.

Topics covered included: Control installation and servicing; servicing fuel pumping units; operation, handling and servicing of oilburner nozzles; sales training; management and organization; installation know-how; combustion chambers, use and purpose of combustion testing instruments; draft and service procedures. The effort was part of a general OHI education program.

To supplement it, 12 film strips in color with sound are being prepared by the Accessory Division for use by the Distribution Division. The latter Division will circulate the educational film strips among its 53 chapters in the United States and Canada. The Accessory Division further is furnishing the Distribution Division with 12 sets of projection and sound equipment to facilitate implementation of the film strip phase of the program.

❖

National Power Show returns to New York

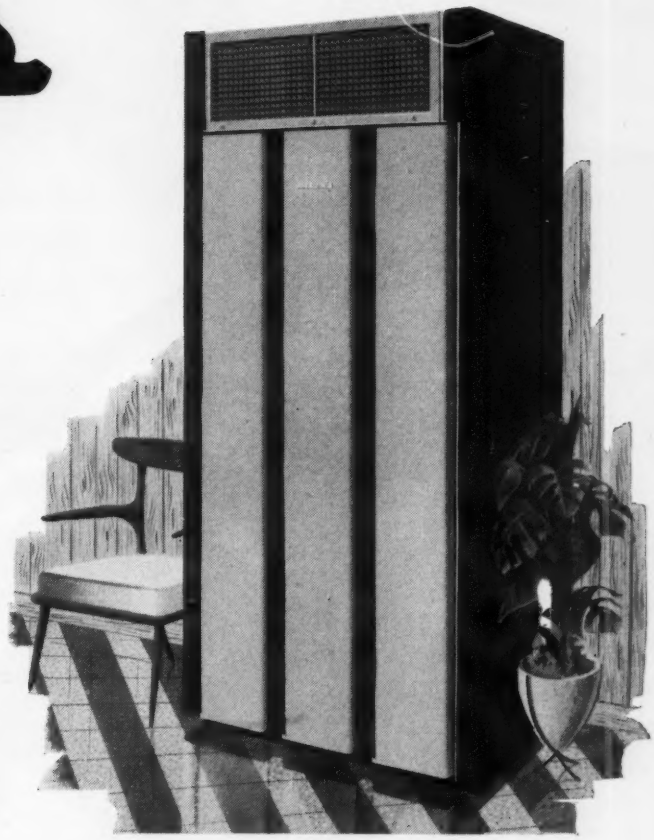
AFTER A FOUR-YEAR absence, the National Power Show is returning to New York November 26-30. The exposition is being sponsored by The American Society of Mechanical Engineers.

The Society's 76th annual meeting will run concurrently with the show. International Exposition Co. is managing the exposition which will be in the new Coliseum.

MAJOR AIR CONDITIONING MANUFACTURER STARTS NEW DISTRIBUTION PLAN

Curtis

Is Appointing Qualified Wholesalers For New Packaged Air Conditioners!



Big New "Off-Season" Profits For Limited Number of Fuel Oil and/or Heating Equipment Distributors

If you have good facilities, and are interested in one of the biggest equipment sales opportunities in years, then read this ad carefully. We want new distributors with warehousing arrangements in many areas to supply more dealers, contractors and builders with *Curtis* packaged units.

SIMPLE ALL-IN-ONE UNITS

"Packaged" means all that the word implies. All components are inside these colorful new units. *No assembly problems.* Every unit is operated and tested *before* it leaves the factory. Outside cabinets are newly modernized and come in *decorator colors* to go with any interior color scheme.

ROUND OUT YOUR SEASONAL SELLING

Air conditioning offers the perfect balance to your fuel oil or heating equipment line. And it could grow to be far larger! If *Curtis* and *you* prove to be the right combination, you're headed for new profits. Fill out the coupon and mail it today on your letterhead.

OPPORTUNITY

Here's an opportunity to become part of a young and growing industry. Most new building plans include air conditioning. Many existing commercial establishments are finding that they must air condition to compete. The market is growing and now is the time to start growing with it!

MOST COMPLETE LINE

Every needed size from 2 through 50-ton units, for use with or without duct work. Cooling Tower to match. Simple installation.

FAMOUS BRAND NAME

Curtis has a 102-year history of success and quality and have been building air conditioning units for 22 years. Curtis offers a complete financing plan, and provides a strong national advertising campaign to make your selling easier.

TEAR OUT—ATTACH TO YOUR LETTERHEAD

Curtis MANUFACTURING COMPANY
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GENTLEMEN: I want to know more about CURTIS,
and the profit opportunities of your new packaged air conditioner line.

Write me full details. ☐ Have your representative call. ☐

NAME_____ TITLE_____

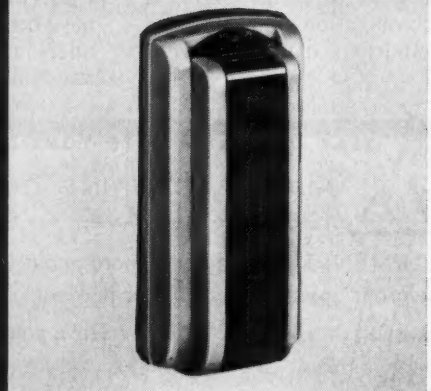
FIRM NAME_____

STREET ADDRESS_____

CITY ZONE STATE

HEATING CONTROLS

G-E LINE OF HEATING CONTROLS GIVES



NO LEVELING thermostat is designed for a wide variety of heating applications and is available to heating equipment manufacturers in a variety of decorator colors.

NO ADJUSTMENTS are needed with G-E master control which is adjusted permanently and expertly at the factory. Only seven contacts assure dependable operation.

CON

THE SAME functions sim fan and limi for use with

GENERAL ELECTRIC ANNOUNCES . . .

NEW, Low-cost, Outdoor Control System with Wide Consumer Appeal

UNIQUE G-E OUTDOOR THERMOSTAT INSTALLS EASILY, CAN HELP INCREASE YOUR SALES OF HEATING EQUIPMENT

The General Electric Appliance Control Department's new outdoor control system regulates indoor temperatures with an indoor-outdoor thermostat arrangement—and costs from 50 to 70 percent less than electronic systems. The simplified G-E system provides the ultimate in modern home comfort by constantly adjusting the indoor temperature in relation to the temperature outside. In operation, the outdoor thermostat tips off the indoor thermostat to changing weather conditions.

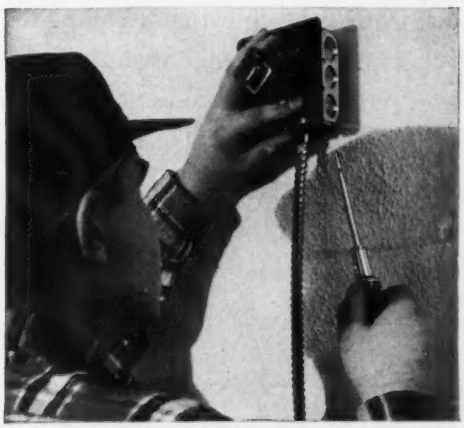
Heart of the G-E outdoor thermostat is a small wafer of carbon that senses weather changes, then sends a minute electrical signal, via a 25-volt transformer, to the indoor thermostat. Thus, warned in advance, the indoor thermostat signals the furnace to deliver more heat.

SIMPLICITY in design drastically reduces maintenance and the G-E control system installs quickly. It gives home owners healthier living conditions at the first practical, inexpensive price in the industry.

HEATING EQUIPMENT equipped with the new G-E outdoor control system, and other G-E heating controls, can open the door to greater sales in the ever-expanding new home construction market.

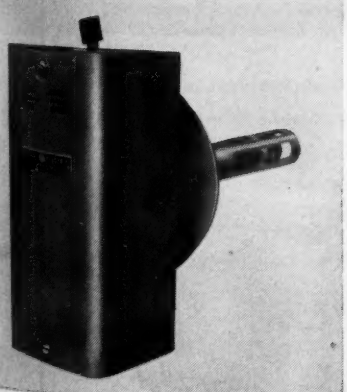
FOR FURTHER INFORMATION contact your nearest General Electric Apparatus Sales Office or clip and send in the coupon below.

INDOOR THERMOSTAT has a compensating resistor mounted in back of bimetal blade and is connected in series with outdoor thermostat being installed at left.

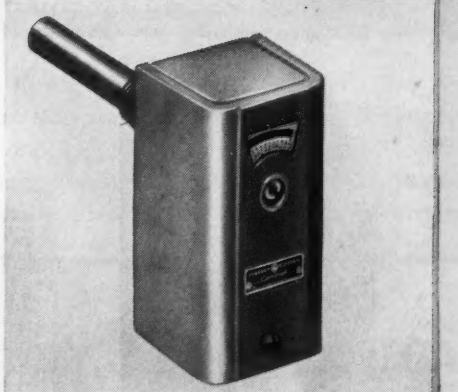


25-VOLT TRANSFORMER completes the simple circuit of the G-E outdoor-indoor system and the current produces artificial heat inside the room thermostat.

COMPLETE CUSTOMER SATISFACTION



THE SAME SWITCH for both fan and limit functions simplifies servicing of the combination fan and limit control. This control is suitable for use with oil-, gas-, or coal-fired systems.



DEPENDABLE IMMERSION control is used to control water temperature. Available either normal acting or reverse acting. Bimetal assembly can be removed easily for inspection.

SECTION B740-99
GENERAL ELECTRIC COMPANY
SCHENECTADY 5, N. Y.

Please send me the following detailed bulletin(s)

GEC-1030 Domestic Heating Controls

GEC-1352 Outdoor Control System

Name.....

Company.....

Street.....

City.....Zone.....State.....

GENERAL ELECTRIC

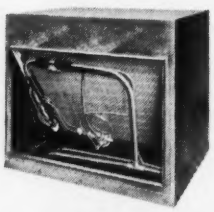
Famous name and N
like these makes

AMERICAN-Standard
AIR CONDITIONING DIVISION

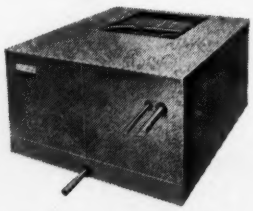
Presents 6 New Additions to Air-Cooled Line . . .
Boosts Dealer Sales and Profit Potentials
to an All-Time High

Waterless air conditioning is going over big. Cash in! Sell American-Standard . . . the line that's complete . . . the line that has the new products, new features that simplify installation . . . the line that sells faster, puts more dollars in your pocket.

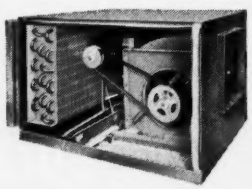
Backed by one of the world's best known brand names—American-Standard—here's *everything* you need—air-cooled *or* water-cooled—to meet the demands of the rapidly expanding residential and commercial cooling market. Here's top quality at competitive prices with a full margin of profit for you.



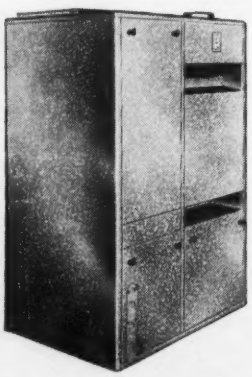
New 5 hp Horizontal Air-Flow Evaporator Unit for Air-Cooled Systems



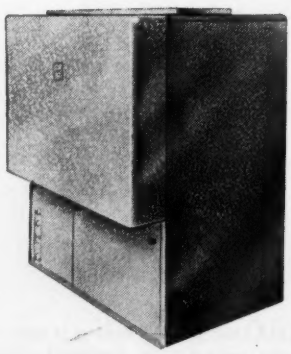
New Counterflow Evaporator Unit For Air-Cooled Systems



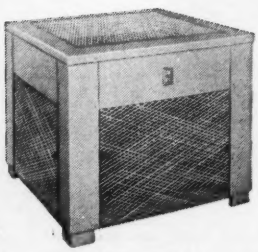
New Blower-Equipped Evaporator Unit for Air-Cooled Systems



New Year 'Round Air-Cooled Unit Equipped for Gas-Fired Heating



New Year 'Round Air-Cooled Unit Equipped for Oil-Fired Heating



New 5 hp Air-Cooled Condensing Unit (in addition to 2 hp and 3 hp)

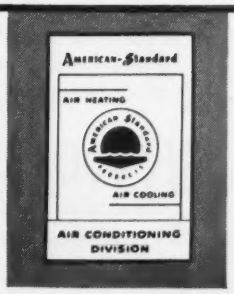
NEW PRODUCTS selling easier!

Get rolling NOW with American-Standard's Big 1956 Promotion Program

Promotion-wise as well as product-wise, the Air Conditioning Division of American-Standard backs you with *complete* sales support. Hard-hitting color and black and white full page ads in leading national home magazines . . . liberal Cooperative Advertising Plan covering newspaper space, radio and TV time, and local home shows . . . plus a brand new aggregation of advertising literature and dealer identification material. **Act fast—contact your nearest American-Standard Air Conditioning distributor...listed under "Air Conditioning" or "Furnaces" in your classified telephone directory.**

EVERYTHING *for air conditioned comfort*

Warm Air Heating
Summer Cooling
Year 'round Units



AMERICAN-Standard

AIR CONDITIONING DIVISION

ELYRIA, OHIO

fueloil & oilheat

MAKE YOUR RESERVATIONS TODAY FOR THE

MOST PROFITABLE SHOW ON EARTH

with

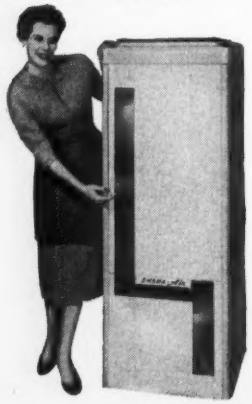
SHANA-Air

Water-Cooled and Air-Cooled (Waterless)

AIR CONDITIONING

Featuring these star attractions:

- futura designing—for any home in any state!
- precision engineering (in compliance with U.L. standards)
- ultra performance (guaranteed at A.S.R.E. and A.R.I. standards)
- Simplified "A-B-C" installation and servicing.
- Shana-Air selling program



AIR-COOLED SAR and SAAC SERIES Available in 2, 3 and 5 ton capacities

WATER-COOLED SW SERIES Available in 2-3-4-6 ton capacities

PLUS these additional attractions:

- "Duo" Units!
- Combination Units!
- Commercial Units!
- Winter Air Conditioners!

Please send me additional information about SHANA-AIR air conditioning.

☐ Cost of units. F&OII

☐ Description of all air conditioning and heating equipment manufactured by Shana Manufacturing, Inc.

☐ Exclusive franchises still available.

Name_____

Name of Firm_____

Nature of Business_____

Address_____

City_____ Zone____ State_____

Phone Number_____

SHANA MANUFACTURING, INC.
188 W Randolph St Chgo 1 Ill DE 2-7030

Air pollution consulting Firm is formed by Hemeon

WESLEY C. L. HEMEON has resigned as engineering director, Industrial Hygiene Foundation and senior fellow, Mellon Institute, to form a new firm, Hemeon Associates, 121 Meyran Ave., Pittsburgh.

The new company will act as general consultants on all aspects of air pollution. It will disseminate information on instruments and techniques for measurement and examination of smoke, fumes, flyash dust, and sulfur and fluorine gases.

Associated with the company will be George F. Haines, Jr., chief engineer, and in a consulting capacity; Maynard S. Smith, Brookhaven National Laboratory, J. K. Cholak, Kettering Laboratory, University of Cincinnati; and Gordon Strom, New York University.

❖

API issues Catalog of oil Publications

A CATALOG, "API Publications for Oil Marketers," has been released by the Marketing Division, American Petroleum Institute. A. J. Rumoshosky, director, said that the folder lists 24 publications directly applicable to industry business problems.

Major sections of the catalog are on management, training, marketing research, stock loss control, lubrication, accounting, driver training, management institutes, marketing safety, aviation, and advertising.

There is a brief description of each publication. Copies of the folder are available free of charge from the Marketing Division, API, 50 W. 50th St., New York 20, N. Y.

❖

February c-i Shipments increase over last Year

SHIPMENTS of commercial-industrial oilburners, as reported by D. H. Bottrill, technical secretary, Oil-Heat Institute of America, New York, N. Y., indicate an increase to 2,382 units during February 1956, compared with 2,001 in February 1955.

Based on reports made by manufacturers to the Institute, a tabulation of annual shipments since 1951, shows a 6-year February average of 2,450 shipments.

A breakdown of February 1956 shipments by types of burners follows:

	Oil-burners	*Gas-Oil Burners*
HORIZONTAL ROTARIES		
2½ and under	82	45
Over 2½ to 8	29	1
Over 8 to 30	360	7
Over 30 to 100	226	11
Over 100	30	7
Total Shipments	727	101
GUN BURNERS		
Over 5 to 30	1387	40
Over 30	55	19
Total Shipments	1442	59
MECHANICAL ATOMIZING		
30 and Over	82	1
TOTALS, ALL TYPES	2251	131

❖

Construction Awards set new Highs in March

CONTRACT AWARDS for future construction in the 37 eastern states soared to $2.4 billion in March, according to F. W. Dodge Corp., reaching the highest for any March in history, 12% above March 1955. Residential awards in March were the highest for any month in history, and the total of $1.1 billion also was 12% ahead of March last year.

In fact, March 1956 was the second highest total for any month in Dodge's 65 years, exceeded only by May 1951 when atomic contracts of nearly a billion dollars were let. If atomic energy contracts are excluded, March 1956 was by far the highest month.

Other highlights of the report: The first quarter of 1956 set new all-time records for total contract awards and for each major category (residential, non-residential and heavy engineering); first quarter totals in 1956 were: total construction up 17% to $6.1 billion; non-residential up 17% to $2.2 billion; residential up 8% to $2.6 billion; heavy engineering up 42% to $1.3 billion.

❖

Walter Bowra, Jr., named sales representative in Brooklyn, Queens and Long Island area for Thatcher Furnace Co., Garwood, N. J.

GM
GENERAL MOTORS
DELCO
DAYTON OHIO
1. Quiet, long lasting starting switch
Simplest switch made: only three parts. Nylon weight and no linkage mean quiet operation. Good for hundreds of thousands of trouble-free operations.
2. Built-in overload protection
Famous Delco Products exclusive Thermotron protector with easy-to-reach manual reset button prevents overload damage.
6. High breakaway torque
Prevents stalling while breaking in new pump. You can depend on easy starting every time, even after summer shutdown.
3. Quietest motor built
Totally enclosed frame, low hum level, special bearing and lubrication system design combine to reduce sound level to a new low. Ask for a demonstration.
5. Totally enclosed frame
Sound level reduced. Living-area installations safer for children. Will not pick up dirt and dust when installed close to floor.
4. Shorter and lighter
Length has been reduced a full 1⅛", weight 30% over previous models. You save on shipping costs, speed assembly, make a more compact burner for the new, smaller furnaces.

DELCO electric MOTORS for OIL BURNERS

Every feature you need to

• Keep your cost down • Build a top grade product

Delco Products not only gives you the top oil burner motor available today, but also backs this fine design with the largest service organization in the business. Wherever you sell burners, a Delco Products service shop is nearby to handle your warranty and service problems.

Check the advantages of this new Delco Electric Motor for oil burners today. Call your Delco Products sales office.

GM GENERAL MOTORS DELCO DAYTON OHIO

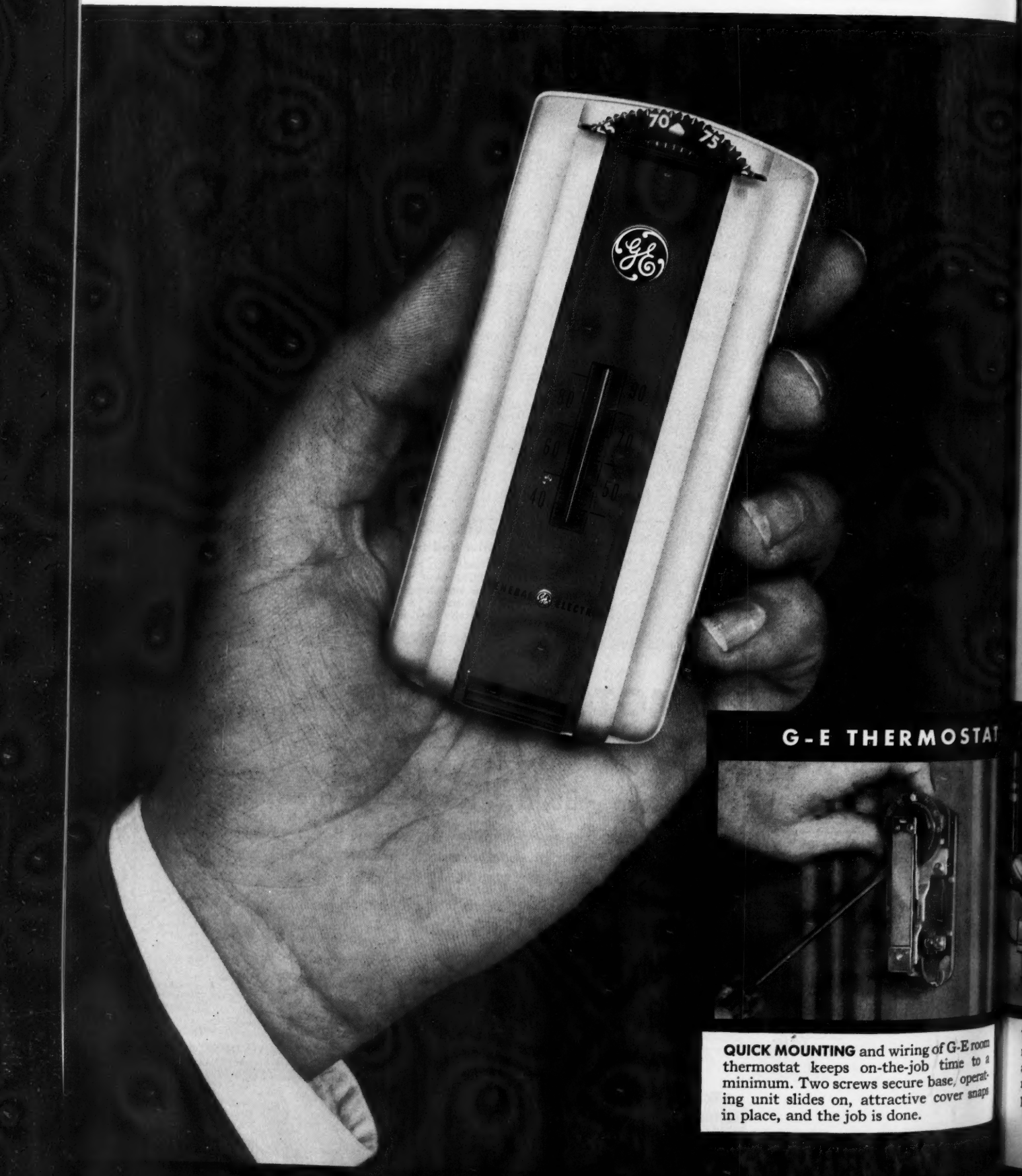
DELCO *Electric* MOTORS

DELCO PRODUCTS, DIVISION OF GENERAL MOTORS, DAYTON, OHIO

Proved best by Performance!

fueloil & oilheat

G-E Room Thermostats Feature Faster Installation, Finger-tip



G-E THERMOSTAT

QUICK MOUNTING and wiring of G-E room thermostat keeps on-the-job time to a minimum. Two screws secure base, operating unit slides on, attractive cover snaps in place, and the job is done.

Modern Design, Adjustments

What a thermostat!

You can calibrate it in the living room with a simple finger-tip adjustment. You can pick the preheat resistor to give your customer a tailor-made installation suitable to the current of his specific control circuit.

You can wire it without fear of damaging the element, as the element is detachable for protection during installation. After the base is fastened and wired to the circuit, the element slips easily into position.

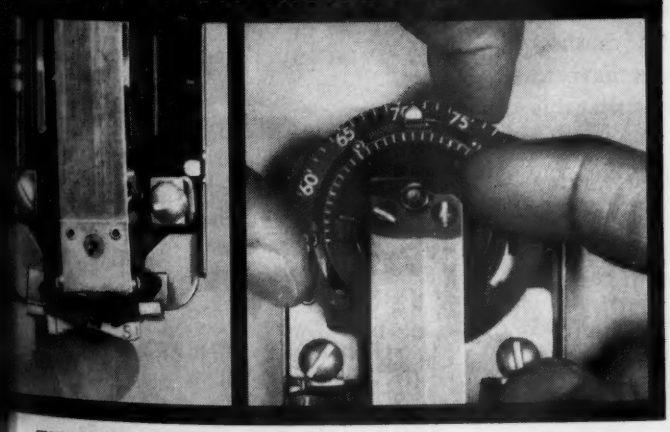
You can proudly tell your customer that General Electric thermostats have established a record of high accuracy in performance through quality and simplicity of design. You can also assure your customer that with factory-calibrated G-E controls, numerous call backs for service and adjustments are not necessary.

ASK ABOUT THIS PLAN

In addition, General Electric thermostats are available to you through G.E.'s unique Heating Control Exchange Plan. Through this plan, which offers both a price and time advantage, you can exchange any make of an inoperative heating control for newly reconditioned G-E equipment. Pick your nearest G-E Servicing Distributor from the handy list at the right, and contact him for free details and information. He will handle your order for new G-E controls, or exchange a G-E control for your present inoperative equipment, with courtesy and dispatch. Contact him right now; it will mean more profit for you and better controls for your customers. General Electric Company, Schenectady 5, N. Y. 740-96

GENERAL ELECTRIC

MOUNTS IN MINUTES!



TWO SIMPLE ADJUSTMENTS assure heating accuracy and cut nuisance complaints and unprofitable call backs. Comfort dial at bottom sets cycling time and calibration is accomplished, if needed, by merely rotating the inner section of the upper dial plate with a finger tip.

PICK YOUR LOCAL G-E DISTRIBUTOR FROM THIS NATIONWIDE LIST*

ALBANY, N. Y.
Cert. Fuel Unit Service Co.
Colonial Heating Equip. Co.
ALLENTOWN, PA.
Sid Harvey, Inc.
ARLINGTON, VA.
Sid Harvey, Inc.
AUBURN, N. Y.
Rood Utilities, Inc.
AURORA, ILL.
Scott Wood & Metal, Inc.
BALTIMORE, MD.
Sid Harvey, Inc.
R. E. Michel Co., Inc.
BATTLE CREEK, MICH.
Columbia Metal Service
BLOOMINGTON, ILL.
MaGirl Foundry & Furnace Co.
BOISE, IDA.
Oil Burner Pts. & Sup. Co.
BOSTON, MASS. Area
Cronin Supply Co.
F. W. Foley Co.
Sid Harvey, Inc.
Metro Supply Co.
Mattapan Supply Co.
BROCKTON, MASS.
R. H. Austin Co., Inc.
BRIDGEPORT, CONN.
Sid Harvey, Inc.
BUFFALO, N. Y.
Rochester Oil Burning System
BURLINGTON, N. C.
Alley & Rader Services
CALDWELL, N. J.
Cent. States Supply Co.
CHARLOTTE, N. C.
Burner Supply Corp.
CHESTER, PA.
Hepco, Inc.
CHICAGO, ILL.
Robert Barclay, Inc.
Place Brothers
C. E. Sundberg Co.
CINCINNATI, OHIO
F. E. Winstel Co.
CLEVELAND, OHIO
Ohio Pump Service Co.
COLUMBUS, OHIO
Columbus Auto. Sprayer Co.
DAVENPORT, IOWA
Republic Electric Co.
DECATUR, GA.
Rayheat Equip. Co.
DES MOINES, IOWA
Dennis Supply Co.
Heating Wholesalers Co.
Ace Supply Co.
DETROIT, MICH.
Hydraulics Pump & Repair
National Furnace & Sheet Metal Co.
Pelton Distributing Co.
Wholesale Oil & Gas. Sup. Co.
EDGEWATER, N. J.
Kogan & Company
ELIZABETH, N. J.
Cert. Fuel Unit Service Co.
EVANSVILLE, IND.
Swanson-Nunn Elec. Co.
FITCHBURG, MASS.
Heat Inc.
FLINT, MICH.
Moore Bros. Elec. Co.
FORT WAYNE, IND.
Tri-State Htg. Supply, Inc.
GARY, IND.
G. W. Berkheimer Co., Inc.
GRAND RAPIDS, MICH.
Mich. Auto Htg. Equip. Co., Inc.
GREEN BAY, WISC.
Beemster Elec. Co.
HARRISBURG, PA.
Fuel Savers, Inc.
HARTFORD, CONN.
Sid Harvey, Inc.
HAWTHORNE, N. J.
Univ. Eng'r'g Co.
INDIANAPOLIS, IND.
G. W. Berkheimer Co., Inc.
JACKSON, MICH.
Leo. A. Tilford, Inc.
KALAMAZOO, MICH.
Associated Supply Co.
KANSAS CITY, MO.
Chas. D. Jones Co., Inc.
Superior Supply Co.
LANSING, MICH.
Contractors Sy. Co.
LOUISVILLE, KY.
Marine Elec. Co.
MADISON, WISC.
Wisconsin Htg. Equip.
MALDEN, MASS.
Oil Heat. Dist. Inc.
MERCHANTSVILLE, N. J.
Cert. Fuel Unit Service
Sid Harvey, Inc.
MILWAUKEE, WISC.
Refrigeration Parts Co., Inc.
Heating Parts Exch., Inc.
MINNEAPOLIS, MINN.
Wholesale Htg. & Sup. Co.
MORRISTOWN, N. J.
Amber Oil Burner Sup. Co.
NEW HAVEN, CONN.
A. R. Webber Co., Inc.
NEWARK, N. J.
Cert. Fuel Unit Service Co.
Sid Harvey, Inc.
Winston Company
NEW YORK CITY, N. Y. Area
Sid Harvey, Inc.
Michael & Goldberg Plbg. & Htg. Inc.
Radiant Burner Supply Corp.
Atlantic Burner Supply Co., Inc.
NORFOLK, VA.
Sid Harvey, Inc.
NUTLEY, N. J.
Nutley Oil Burner Supply & Tool Co.
OKLAHOMA CITY, OKLA.
Waugh Bros. Sup. Co.
OMAHA, NEBR.
Dennis Supply Co.
ORLANDO, FLA.
Industrial Equip. Co.
PASSAIC, N. J.
Sid Harvey, Inc.
PEORIA, ILL.
Htg. Supply & Service Co.
PHILADELPHIA, PA.
Cert. Fuel Unit Service Co.
Girard Supply Corp.
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PORTLAND, OREGON
McPherson Furnace & Supply Co.
PROVIDENCE, R. I.
Rhode Island Fuel Pump Service Co., Inc.
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R. E. Michel Co., Inc.
Refrigeration Supply Co.
ROANOKE, VA.
Southern Refrigeration Corp.
ROCHESTER, N. Y.
Rochester Oil Burning System
ROCKFORD, ILL.
Oil Heat Parts
SAGINAW, MICH.
Reichle Supply Co.
SCHENECTADY, N. Y.
LeValley McLeod Inc.
SEATTLE, WASH.
McPherson Furnace & Equip. Co.
SIOUX CITY, IOWA
Dennis Supply Co.
Heating Wholesalers Co.
SOUTH BEND, IND.
Koontz-Wagner Elec. Co.
STERLING, ILL.
Crescent Elec. Sup. Co.
SPOKANE, WASHINGTON
McPherson Furnace & Equip. Co.
SPRINGFIELD, MASS.
Gray Supply Co.
STELTON, N. J.
Sid Harvey, Inc.
SYRACUSE, N. Y.
Oil Burner Supply Co.
THOMASVILLE, GA.
Industrial Equipment Co.
TOLEDO, OHIO
Fry Furnace Co.
TRAPPE, PA.
Jacob H. Bowers Co.
TRENTON, N. J.
Lincoln Supply Co.
TROY, N. Y.
Century Supply Co.
UNION CITY, N. J.
Sid Harvey, Inc.
UTICA, N. Y.
Rood Utilities Co.
VINELAND, N. J.
Hepco, Inc.
WASHINGTON, D. C.
Sid Harvey, Inc.
R. E. Michel Co., Inc.
WATERLOO, IOWA
Heating & Cooling Supply Co
Heating Wholesalers Co.
WICHITA, KAN.
Superior Sup. Co.
WILMINGTON, DEL.
Greenburg Supply Co.
Sid Harvey, Inc.
WOODBURY, N. J.
Sid Harvey, Inc.
WORCESTER, MASS.
Sid Harvey, Inc.
John W. Walsh, Inc.
YORK, PA.
Sid Harvey, Inc.
ZION, ILL.
Mid-Way Supply Co.

** This list is continually being expanded to supply you with even greater G-E heating control service.*

bigger filter in PREMIER furnace cleaners doesn't need cleaning before the can is full

In furnace cleaning, it's not the size of the can; it's the efficiency of the filter* that counts. Now, for the first time, a full ½ bushel-capacity cleaner! You can do a perfect job and never have to worry about lugging cleaning equipment around. Notice that this machine is only ½ the size of ordinary cleaners.

PREMIER's giant pleated filter has 3 times more working filtering area than other makes. This means you don't have to clean the filter so often either. 2 out of 3 filter-cleaning interruptions are avoided. Jobs go faster. You make more profit per job.

"OLD RELIABLE"—famous Premier furnace and air conditioning cleaner (P-908F) now also available with this new auxiliary filter. For information on *all* Premier furnace and air conditioning cleaners, write today for Folder FB14.

For complete information, write today to . . .

*Patent applied for.

PREMIER

PREMIER COMPANY
Dept. 505
755 Woodlawn Ave., St. Paul 1, Minnesota
35 Gerrard St. West, Toronto, Canada

Industry Groups

Activities of local and national industry associations are reported monthly in this department. Secretaries are invited to send reports of their Group's activities to the editor by the 5th.

Oregon OHI opens oilburner technical School on May 1

A FULLY-EQUIPPED LABORATORY, including furnaces, burners, testing equipment and tools featured the Oilburner Technicians School which opened May 1 in Oregon. Factory specialists are participating as consultant instructors in connection with the 13-week course, covering such areas as burners, pumps, combustion chambers, fuel systems, wiring and plumbing.

The course, offered by the technical department of the Oil Heat Institute of Oregon, Portland, Ore., is the first of its kind conducted west of the Mississippi. It is designed to give the graduate student a sufficient knowledge of technical theory and an adequate amount of shop training and field trips to enable him to go into the field as a qualified burner service technician.

New York Group sets Night to honor Fred W. Heaney

FRED W. HEANEY, past president of the New York Oil Heating Association, New York, N. Y., is to be honored at a testimonial dinner on May 14. The affair, being held at the Hotel Demonico, begins with a reception, follows with the dinner and concludes with an entertainment program.

Details were worked out by an entertainment committee, consisting of Art Bierman, Harold Layman and Philip Schepp, executive secretary.

Greater Philadelphia Fuel Conference holds Convention

CARL OECHSLE, deputy assistant secretary of commerce, Washington, D. C., was guest of honor and speaker at the all-industry luncheon of the Greater Philadelphia Fuel Conference. Oechsle, who is currently on "tour of duty" in the nation's capital, spoke on "The Challenge to Business Brain Power."

Myron Cohen, nationally famous comedian and raconteur, provided the convention's comic relief at the banquet, while other talks were delivered by John Warren, president, Property Owners Association of Philadelphia, Inc., and William Johnson, executive vice-president, Home Builders Association of Philadelphia and Suburbs, who selected the topic, "What the development Builder wants from oil Heat."

The conference, an all-day meeting, took place Wednesday, April 25, in the Warwick Hotel.

Central Supply Group features Modernization at April Meeting

THE SPRING MEETING of the Central Supply Association, held April 4, 5 and 6 at the Palmer House, Chicago, featured modernization. A principal theme was the emphasis placed on ways and means whereby heating dealers can participate in such widely-publicized programs as Operation Home Improvement and the more recent All Industry Plumbing and Heating Modernization Program.

Charles Thompson, president of the Central Supply Association, discussed this during his address of welcome at a general session held during the morning of April 5. He reminded the wholesalers of their obligation to educate their customers—the heating dealers—of the profits to be realized from modernization work. More important, he declared, is the necessity to teach the dealers how to sell a financed installation, including an explanation of the requirements and provisions of FHA Title I loans.

Thompson pointed out that if a dealer has his own company approved by a lending agency of his own choosing, "he controls the financing. The homeowner does not get the money and then start shopping for a better deal." The dealer makes all of the arrangements and actually owns the sale.

There followed talks on "Operation Home Improvement" by Don Moore; "Our golden Opportunity" by Robert R. Morrill, president, National Association of Plumbing Contractors, and a "New Dimension in Selling" by Hal A. Bergdahl, managing dealer sales, Crane Co. Concluding speaker at the

how PREMIER furnace cleaners cut your labor-time costs

Labor-time takes 90% of your maintenance cleaning costs. PREMIER saves you money because it reduces that time. Here's how:

1 You spend less time on each job because of special pleated filter design. The filters in PREMIER machines are 3 times larger than others . . . 3 times more working-filter area than other makes. This saves time . . . boosts profit of each job. Notice this machine is half the size of ordinary cleaners, yet holds a full half bushel.

2 PREMIER equipment is practically maintenance-free because their special built motors are well ventilated to run cooler. Extra air flow over the motor is possible also by the exclusive "3-times larger" filter. This means longer motor life.

3 All models are completely equipped with standard attachments. Special tools for out-of-the-ordinary jobs are also available.

PREMIER YOUR BEST BUY

4 Low initial cost due to high volume of sales. Fine engineering design born of years of experience have made PREMIER machines the preference of cleaning men.

5 Listed by Underwriters' Laboratories and Canadian Standard Ass'n.

"OLD RELIABLE"—first and most famous Premier furnace and air-conditioning cleaner (P-908F) with external filter bag for "hot jobs" now also is available with new 3-times-larger internal filter. For information on *all* Premier furnace and air conditioning cleaners, write today for Folder FB14.

PREMIER

PREMIER COMPANY
Dept. 506
755 Woodlawn Ave., St. Paul 1, Minnesota
35 Gerrard St. West, Toronto, Canada

SPECIFICALLY...a better burner

MODEL 400 S (Available for Flange Mounting)

here specifically are the big reasons why the preference among oil burner men is...

U. S. - CARLIN

- Advanced design and quality construction throughout
- Consistently dependable performance
- Requires but a minimum of servicing
- Customer acceptance . . . attested to by thousands of satisfied owners
- Manufactured by a progressive company, owned and operated by men eminently successful in the oil burner field.

They Outsell Because They Excel

facts without fancy about the outstanding U. S. - Carlin Oil Burner

MOTOR—⅛ H. P. long hour, heavy-duty with safety overload control. Large bronze bearings.

TRANSFORMER—10,000 volt. Shielded to eliminate radio and TV interference.

AIR TUBE—Steel with Shell High Temperature Combustion Head and finned collar ring for efficient air-oil mixture.

FAN—Precisely balanced. Mounted directly on motor shaft.

NOZZLE—Stainless steel. Hollow spray.

FUEL UNIT—Single-stage with built-in strainers and pressure regulating valve. Strainer capacity equal to or greater than maximum firing rate. Piped directly to delayed-opening valve.

HOUSING—Cast iron. Machined to rigid standards. Perfected scroll design of housing assures most efficient air delivery and required static pressure at burner head.

"VERNI-FLAME" CONTROL—an exclusive development that provides Vernier Flame adjustment with an ordinary wrench. Eliminates "feathering", gives a perfect cone flame by turning adjustment screw.

BUS BARS—Preformed phosphor bronze bus bars last a lifetime; no insulation to deteriorate, simplifies servicing.

ELECTRODE INSULATORS—extra-long, glazed porcelain.

COUPLING—Universal type with rubber center piece.

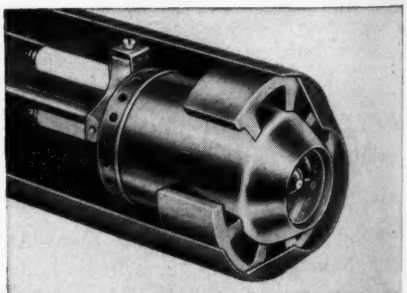
GRADE OF OIL—No. 2 Commercial Standard C.S. 12-48.

CONTROLS—Thermostat, Limit Control and Stack Relay.

CAPACITY AND ELECTRICAL CHARACTERISTICS

115V-60 cycle—1725 R.P.M.
400S-1—0.50 to 0.75 G.P.H.
400S-2—0.75 to 1.75 G.P.H.
400S-3—1.75 to 3.00 G.P.H.

230V-50 cycle—1425 R.P.M.
400S-1—0.50 to 0.75 G.P.H.
400S-2—0.75 to 1.35 G.P.H.
400S-3—1.35 to 2.00 G.P.H.



with HTCH

The High Temperature (Shell) Combustion Head provides the nearest thing to perfect combustion . . . makes possible fuel savings up to 36%. With its highly efficient air-oil mixture, it develops higher flame temperatures than an ordinary burner, keeps heating surfaces clean . . . both resulting in fuel economy. The High Temperature Combustion Head is foolproof in design, simplifying service and adjustments.

MODEL	Tube Lgth.	Length Overall	Width	Min. Height	Max. Height	Min. Floor to Nozzle	Max. Floor to Nozzle	Tube O.D.	Aver. Ship. Wt.
400S	10"	20¼"	19½"	17⅝"	20½"	6½"	9⅜"	4⅛"	94 lbs.
400SE	18"	28¼"	19½"	17⅝"	20½"	6½"	9⅜"	4⅛"	97 lbs.

THE CARLIN COMPANY
Weather-field 9, Connecticut

session was E. L. Hannon, Jr., Eckstein Co., Pittsburgh, who discussed modernization from a wholesaler's view-point.

He highlighted the advantages to the dealer of modernization sales: Prices less competitive than new home market, for example; easier to sell quality products; modernization business is conducted on a sound financial basis, backed by non-recourse finance paper; customer is more dependent on the dealer and his inventory.

From the wholesaler's standpoint, Hannon continued, he's interested in moving a volume of product with the least possible expense and maintain the necessary margin of profit. As a means of doing this, the wholesaler must provide proper training for his salesman to permit him to qualify as a sales engineer. And, coupled with this technical training, the salesman must have at least a rudimentary business knowledge so that, among other things, he can take the dealer to the bank or other financing institution and "be able to conduct himself in an intelligent manner with the officer in charge of repair and modernization loans."

Next in selling modernization programs to his dealer customers, the wholesaler will do better, Hannon said, to concentrate on those dealers who show the greatest amount of interest and are willing to exert the effort needed to make modernization sales. The dealer, Hannon emphasized, also must be an expert in modernizing financing, "because therein lies the key to this most desirable market."

The afternoon of April 5 was devoted to a conference booth program, wherein manufacturers of plumbing and heating products were present with their representatives to discuss with wholesalers the equipment and services they had to offer.

Social activities included a "Get-acquainted Time" on April 4 and a banquet on April 5.

Advertising Program highlights Long Island Group's Activities

AT THE MARCH MEETING of the Oil Heat Institute of Long Island, J. Gerald Brown, advertising agency of Hempstead, N. Y., explained in detail the program he is executing for the group. The entire promotional activity is supervised by the Institute's Promotion Committee, Leonard Braun, chairman.

Brown explained the scope of the program, first newspaper advertising for which appeared in Long Island papers on April 3, and extended an offer to co-operate with member dealers who wish to tie-in their advertising with the over-all campaign.

At the April 10 meeting, guest speaker was Edward Esterline, executive secretary, Greater Philadelphia Fuel Conference. His topic, "How Philadelphia is fighting the monopoly Fuel," told of his organization's experience with gas competition and what steps are being taken to promote oil-heating in the face of it.

Preliminary plans have been announced for the Institute's first annual installation dinner dance, scheduled for May 10 at the Huntington Crescent Club, Huntington, N. Y.

ASHAE to hold semi-annual Meeting June 18, 19, 20

THE SEMI-ANNUAL meeting of the American Society of Heating and Air-Conditioning Engineers, will feature a residential airconditioning symposium as one of its main attractions. The conference, according to an announcement by Walter A. Grant, chairman of the program, to be held in The Shoreham, Washington, D. C., will consist of seven sessions, during which 13 papers and two symposiums will be presented; the second symposium will provide an interesting exchange of information on codes and standards.

The first session of the semi-annual meeting will be opened on Monday morning, June 18, by the Society president, John W. James, vice-president, research, McDonnell & Miller, Inc., Chicago, Ill. Papers will be delivered featuring material on indirect water heaters, natural convection and radiation in a panel-heated room, while the second session will center on the problems of snow melting, and residential perimeter heating. Papers on air velocities, water vapor, permeability, and effect of unbalanced air pressure on permeance, solar energy, intermittent

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DEALERS —
If you have not stocked this FAST selling gauge, you are missing a good bet.
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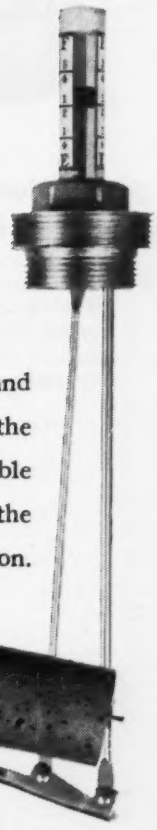
Installation men and home owners like the new exclusive flexible float rod, and the ease of installation.
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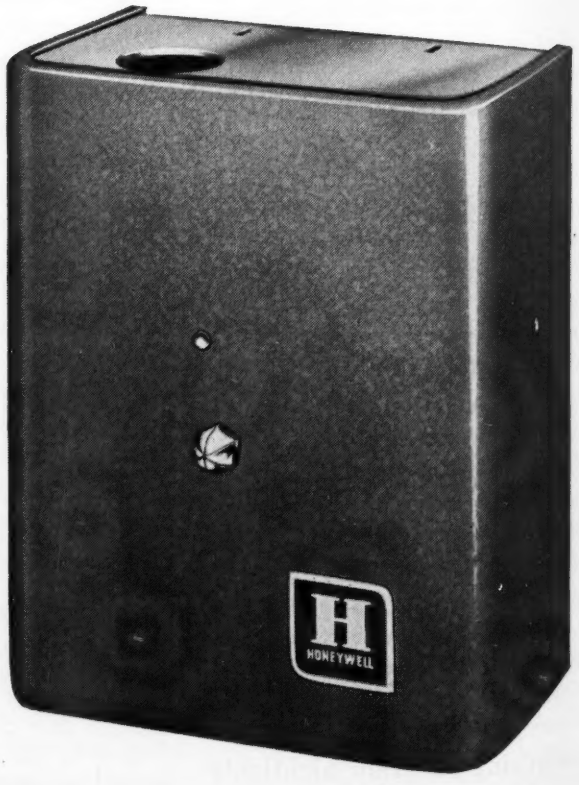
New Honeywel Fla

Honeywell RA 890
Protectorelay

Provides automatic self-check after any power interruption—long or short, accidental or intentional—when power is reapplied. When used alone, it returns ignition immediately to re-establish the pilot or main flame.



R482D Switching Relay

In combination with the RA890, it provides immediate shutoff of fuel supply and post purge after a flame failure.

Controls for your every need and purpose

Honeywell RA890—R482D Team for pressure atomizing oil burners or power-type gas burners

el Flame Safeguard Team

New system provides immediate fuel cutoff and post purge after every flame failure

IMMEDIATE and complete shutdown of the fuel supply plus a post purge by the burner motor after every flame failure—both occur automatically when Honeywell's new Flame Safeguard system and appropriate fuel valve are protecting your burner.

The system combines the new RA890 Protectorelay* and the compact R482D switching relay. Here are some of its important features:

Gives a complete safe start component check on every burner failure and immediately following each power failure.

Provides perfect burner sequencing.

Fuel valve cuts off fuel supply 2 to 4 seconds after flame failure. Burner motor is kept running to purge combustion chamber.

Exclusive flame rectification circuit makes it impossible for short circuits or leakage to ground to simulate presence of flame.

Easy to install, simple to service.

Other combinations available.

Ask your manufacturer for Honeywell Flame Safeguards. For more information, call your local Honeywell office, or write Dept. FH-5-73, Minneapolis 8, Minnesota.

*Trade-Mark

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112 OFFICES ACROSS THE NATION

H HONEYWELL

First in Controls

FOR **HIGHEST LEAK RESISTANCE** CHOOSE **VIKING**

TRUCK MOUNTING PUMPS

PACKED OR MECHANICAL SEAL

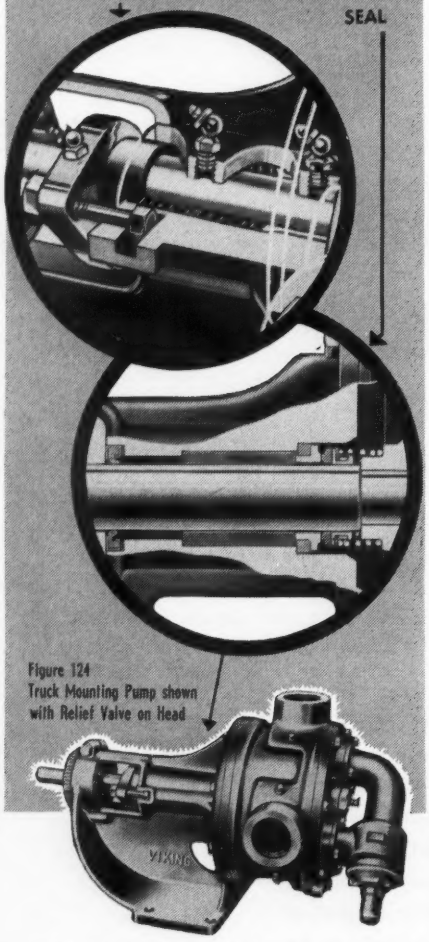

Figure 124
Truck Mounting Pump shown with Relief Valve on Head

Specify either packed or mechanical seal-equipped Viking Truck Mounting pumps for highest leak resistant service.
With either one, you get the rugged thrust bearing-equipped, compact Viking pump construction. You also have the revolvable casing for handy port location. Both include a compact relief valve on head if desired.
In addition, you have the fast priming and positive, smooth flowing discharge that all Viking "gear within a gear" pumps give you every time.
Send for complete oil equipment catalog Gee today.

VIKING PUMP CO.
Cedar Falls, Iowa, U.S.A.
In Canada, it's "***ROTO-KING***" pumps
SEE OUR CATALOG IN SWEETS

ground grids for heat pumps, and intermittent heating and cooling of buildings constitute the subject matter for the remaining sessions.

The Committee on Arrangements of the Washington, D. C. Chapter of the Society is headed by Paul R. Achenbach, assisted by vice-chairman, William C. Reamy and honorary chairman General W. A. Danielson.

Union County Association elects Officers at Meeting

UNION COUNTY Oil Heat Association re-elected its officers at the April 5 meeting of the group held in Mountainside, N. J. Named to serve another term were: Robert M. Crane, Reel-Strong Coal Co., Inc., president; Leo D. Kramer, Monarch Fuel Oil Co., vice-president; Philip K. Carter, T. R. Loizeaux Fuel Co., secretary; Edwin H. Clements, Clements Bros., treasurer.

Re-elected to the board of directors were: Harry A. Engleman, Engleman-Goodfield Co.; Philip Okun, Universal Htg. Co.; Cyril Poling, Poling Oil Co.; Al Rosenberg, Albert Fuel Co.; Fred M. Smith, Fuel Oil Supply; James Smith, Jr., Premier Oil Co.; Ralph L. Smith, Smith Oil Co.; Jack Sobel, Sobel Fuel Service; George F. Wood, Boice-Runyon Co.; T. R. Loizeaux, chapter representative to OHI board of directors.

Two new directors were elected: Jack Byrne, Elizabeth Coal Co. and Nat Pierce, Reliable Fuel Oil Supply Co.

Featured speaker at the April meeting was Carleton Bucher, industry consultant, who has been retained by the Oil Heat Council of New Jersey to follow the natural gas pipeline situation.

Porter and Davis Talks highlight IPAA Meeting

A TOP EXECUTIVE of the American Petroleum Institute and an expert on offshore drilling spoke to members of the Independent Petroleum Association of America in Los Angeles, Calif. on April 30 and May 1.

The two-day IPAA meeting, which was held in the Hotel Statler, was be preceded by four days of advance meetings by special committees. The IPAA's national executive committee and state area vice presidents met Sunday, April 29, to review issues facing the petroleum industry and discuss plans for their solution.

"A Time to Speak" and "Offshore Drilling" were the titles of two of the talks given, respectively, by Frank M. Porter, president of API and Eugene L. Davis, consulting engineer and geologist of Long Beach, Calif. Other highlights of the session included reports by Robert L. Wood, president of IPAA and by Russell B. Brown, the association's general counsel.

Additional speakers included Jerome K. Kuykendall, chairman of the Federal Power Commission, whose topic was: "Federal Regulation of independent producers of natural gas"; W. H. Geis, Los Angeles petroleum engineer and geologist, discussed percentage depletion.

Chicago Oil Men's Club hears Address on Middle East Oil

THE MARCH 22 meeting of the Chicago Men's Club, held at the Congress Hotel, featured a talk by Brigadier Stephen Longrigg, historian and scholar, who discussed "Middle East Oil and its Functions in a free World."

He drew on his 20 years' experience as an official of the Iraq Petroleum Co. to prepare the material for his address.

OHI holds sales training Schools for Florida Dealers

DISTRIBUTION DIVISION, Oil-Heat Institute of America, New York, N. Y., held three sales training schools for oilheating and airconditioning dealers in Florida during April. Schools took place on April 16 in Miami, April 19 in Tampa and April 20 in Jacksonville; each was an all day session.

All three were under the direction of Ray Horan, merchandising manager, General Controls Co., presented in co-operation with the Distribution Division as part of its overall national education program.

The schools concentrated on the fine art of selling, rather than product, covering the steps to a sale, the art of prospecting, presentation and closing, figuring a job at a profit, recruiting and

THE SECRET INGREDIENT

Experience is the "hidden plus" that is built into every Torrington air-impeller design... experience derived from the development of literally thousands of design variations created to meet the performance requirements of products valued at nearly four billion dollars a year!

Typical of Torrington's product range in immediately available production equipment:

P SERIES: *A high-performance fan blade designed for a wide variety of medium pressure applications.*

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L AND LU SERIES: *A one-piece fan blade available at low cost designed for especially quiet operation in many applications. LU fan pierced for unit bearing motors. L fan equipped with regular hub.*

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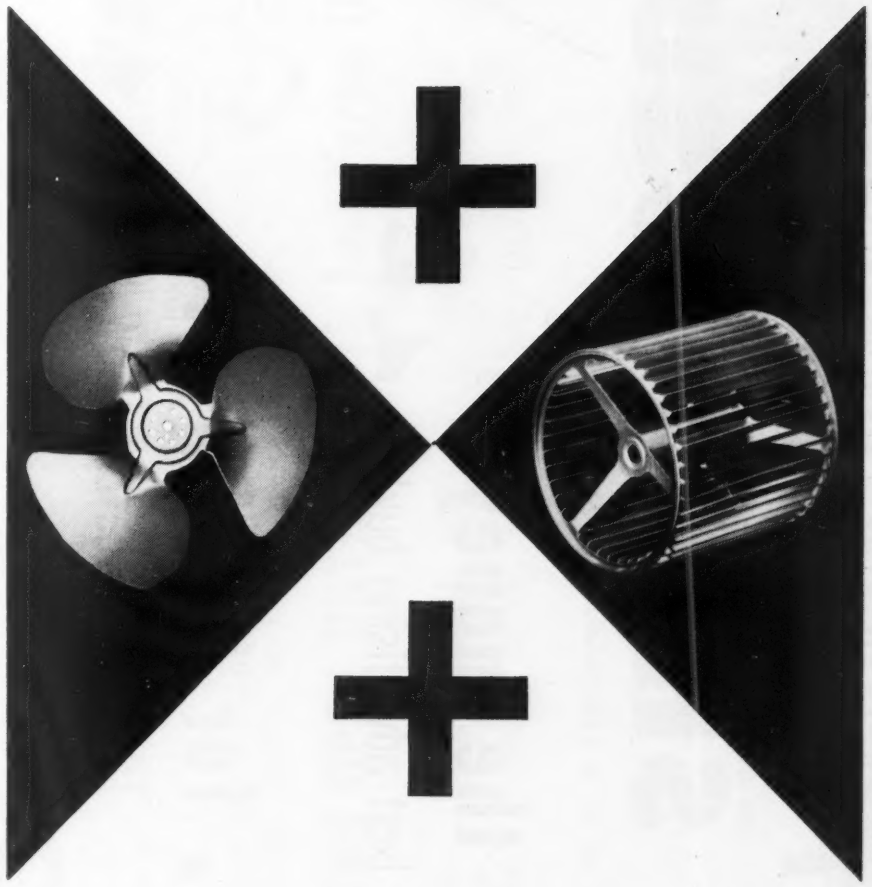
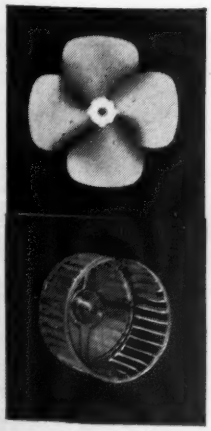
AIROTOR BLOWER WHEELS: *Single wheel, double wheel and "X" Type double intake wheel designs, available with special spline, jaw or short hub.*

Torrington's research, development and testing laboratories are available to you for the solution of any air-impeller problems relating to new product design.





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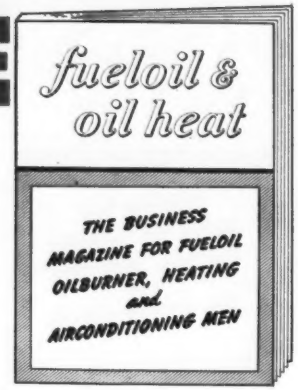
HOTTEST NEWS OF THE YEAR!

JUNE SHOW ISSUE



1... for the money

(your best advertising buy)

2... for the SHOW

(this is it—the big SHOW ISSUE)

3... to get Ready

(Advertising forms open until May 15.)

and 4... to go!

(Get the extra, added circulation and attention with no rate increase)

The OIL HEATING YEAR'S Best

(Get the extra, added circulation and

The OIL HEATING YEAR'S Best

Advertising BARGAIN. Be Sure Your

Message Goes To The Show in the

JUNE SHOW ISSUE

This is our Official Issue for the 21st NATIONAL OIL HEAT AND AIR CONDITIONING EXPOSITION, New York City Coliseum, June 11-15. For Exhibitors it offers a chance to ***Promote*** and ***Merchandise*** your display and products, and thus assures success, and that extra dollar's worth of value for both the Ad and the Exhibit. For Non-Exhibitors it provides a means of participating in the Show, because extra copies will be distributed at the Exhibit and the 34th O.H.I. Convention, as well as in the field. It will be a focus of Show information—a preview—for it will contain complete Show data. All of this in addition to our regular high-quality, reader-inviting, features, stories, news, etc. Reader interest will be very high!

The SHOW ISSUE will be mailed early to obtain complete field distribution well ahead of the Show. That is why ADVERTISING FORMS WILL CLOSE TIGHT MAY 15 (May 22 for Back of Book).

The SHOW IS THE BIGGEST EVENT IN THE OILHEATING YEAR. The Event, the excellent season of year, and the Show Issue itself, make this a place for your largest, strongest ad. Many advertisers have already reserved larger space, with special and extra colors. Should we reserve space for you?

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Michigan-Ohio:
Jim Becker, 137 South Street, Chelsea, Michigan (GReenwood 9-7641)

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Don Harway, 1709 W. 8th St., Los Angeles 17, Calif. (DUnkirk 2-8576)

OIL-HEAT INSTITUTE OHI OF AMERICA INC.

fueloil & oil heat

THE BUSINESS MAGAZINE FOR FUELOIL OILBURNER, HEATING and AIRCONDITIONING MEN

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with THROW-AWAY BAG!

SOOTMASTER Filter Unit, designed for easy installation in container of G. E. and Premier Furnace Cleaners, eliminates the outside bag. Gives double protection against leaks and blow-outs. THROW-AWAY BAG provides a safe and easy method of dirt disposal.

$19.75 Complete with 10 throw-away bags and quick-release tie-cord.

• Order from your jobber
• Jobbers' inquiries invited

Master-Craft SUPPLY CO., INC.
HAVERSTRAW, NEW YORK

training salesmen, managing salesmen, how to advertise and similar money-making points.

Spade speaks at Convention Meeting of Washington OHI

OIL HEAT INSTITUTE of Washington held its 13th annual oil heat convention meeting at the Davenport Hotel, Spokane, on May 3, 4 and 5.

Herb Spade, chairman, OHI Distribution Division, was discussion chairman of a panel on natural gas competition. Another panel was headed by Henry Auld, president, OHI of Oregon, and the subject was electric heat.

Among the other panel leaders and their topics were the following: Dave Knapp, Great Western Fuel Co., "Employee Education"; Charles H. Burkhardt, national secretary, OHI, Distribution Division, "Oilburner Service"; and Robert Gray, FUELOIL & OIL HEAT, "Sales Promotion."

Preceding the work sessions that began on Friday, May 4, was a golf tournament for dealers on Thursday.

Illinois Engineers Meeting stresses Airconditioning

THE DESIGN of high velocity duct distribution systems for several installations was the subject of the March 12 meeting of the Illinois Chapter of the ASHAE held in Chicago, on March 12.

G. C. Savage, engineer in charge of airconditioning for Bevington, Taggert & Fowler, consulting engineers in Indianapolis, discussed the high velocity type of duct distribution, installation problems and operating results.

Heating & Ventilating Show scheduled for February 25

THE 13TH INTERNATIONAL Heating & Air-Conditioning Exposition will be held at the International Amphitheatre, Chicago, February 25-March 1. It will be held under the auspices of the American Society of Heating and Air-Conditioning Engineers in conjunction with the Society's 62nd annual meeting.

Management of the show is under the direction of International Exposition Co., 480 Lexington Ave., New York 17, N. Y.

Calendar of coming Events

MAY

6–8—Empire State Petroleum Assn. (annual meeting), Mark Twain Hotel, Elmira, N. Y.

8—Independent Oil Men's Assn. (annual convention), Sheraton Plaza Hotel, Boston.

8–10—Management Institute sponsored by the Wisconsin Petroleum Association at the University of Wisconsin, Madison, Wisc.

10–11—Wisconsin Oil-Heat Association, (annual industry rally), Wisconsin Hotel, Milwaukee.

13–15—Pennsylvania Petroleum Assn., Bedford Springs Hotel, Bedford.

14–15—Steel Boiler Institute (annual meeting), Brown Hotel, Louisville.

14–16—Commercial-Industrial Oilburning and Equipment Conference, Michigan State University, E. Lansing, Mich.

15–16—Louisiana Oil Marketers Assn. (annual meeting), Roosevelt Hotel, New Orleans.

17–19—National Oil Jobbers Council (spring meeting), Atlanta Biltmore Hotel, Atlanta, Ga.

20–22—Tennessee Oil Men's Assn. (spring meeting), Hotel Lookout Mountain, Chattanooga, Tenn.

21–23—American Petroleum Institute, Division of Marketing (midyear meeting), Atlanta Biltmore Hotel, Atlanta, Ga.

21–24—Air Pollution Control Assn. (annual meeting), Buffalo, N. Y.

22–25—National Warm Air Heating and Air Conditioning Assn. (Board of Directors, Committee Meetings, Technical Conference), Edgewater Beach Hotel, Chicago, Ill.

26–June 2—North Carolina Oil Jobbers Assn. (annual meeting), aboard the "Queen of Bermuda."

JUNE

4–8—National Fire Protection Association (annual meeting), Hotel Statler, Boston, Mass.

11–14—National Plumbing and Heating Exposition, Auditorium, Milwaukee, Wisc.

11–15—21st National Oil Heat and Airconditioning Exposition, Coliseum, New York City.

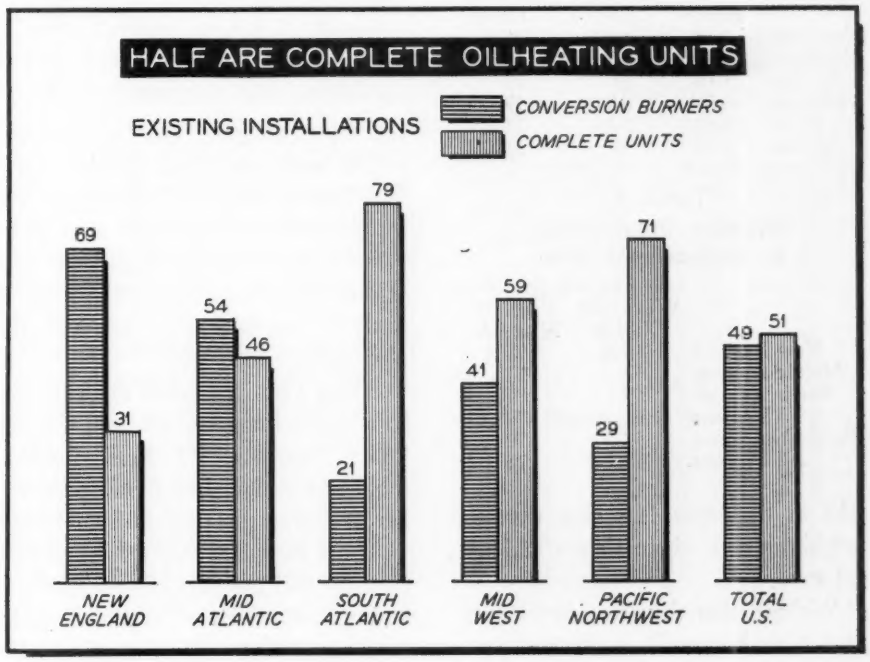
11–15—OHI (34th annual convention), Park Sheraton Hotel, New York.

18–19—National Heating & Airconditioning Wholesalers, French Lick Sheraton Hotel, French Lick, Ind.

18–20—American Society of Heating and Airconditioning Engineers (semi-annual meeting), Shoreham Hotel, Washington, D. C.

25–26—Northwest Petroleum Association. (Summer Conference), Edgewater Beach Hotel, Detroit Lakes, Minn.

New Homes, Replacements show Strength for Oilheating



INTO THIS ANNUAL analysis of service and installation management, we have injected this year several new lines of thinking. We went off on this tangent, originally, because an executive of a large oil company made the statement that oil could only be sold in new home developments where gas was not available.

We were convinced that this statement was pretty wide of the truth. So we asked some questions in our nationwide sampling this month to get the facts from oilheating dealers. This explains the background of TABLE 1.

To get the full import of what the table discloses will take a moment's concentration, but it is more than worth it. Look at the bottom line of the table which wraps up the columns for the country as a whole. Here we see that 54% of the oilheating installations that went into new homes in 1955 were located in areas where gas was available for heating new homes. The last figure on the second column shows that where oilheating jobs were installed in 1955 in old homes, 65% of these were in neighborhoods where gas was available for heating.

What the table does not say is that in neighborhoods where either fuel could be used, oil got 54% of the new home business and 65% of the old home installations. It is important to be sure that you are not taking the figures in that light. We are simply refuting the statement, and refuting it in every section of the country, that oil is only installed in new homes where gas is not available for heating . . . and that conclusion covers the Midwest as well as all other sections.

Of course, there is a relationship between fuel choice and costs. That is why we have the third column in the table. The Midwest is the only broad general area where gas costs less than oil, and in this area only 42% of oilheating installations in new homes were in gas supplied neighborhoods. The other 58% new home oilheating

TABLE 1

Per Cent of 1955 Oilheating Installations that were sold where Gas was available

	New Homes	*Old Homes*	—GAS COSTS— *More*	*Less*
NEW ENGLAND				
Large Cities	93%	93%	39%	..
Medium Cities	85	85	29	..
Small Cities	28	34	41	..
All Cities	78	79	36	..
MID-ATLANTIC				
Metro. New York	74	91	24	..
Other Large Cities	62	82	22	..
Medium Cities	52	62	9	..
Small Cities	37	49	13	..
All Cities	58	72	17	..
SOUTH ATLANTIC				
All Cities	40	52	19	..
MIDWEST				
Large Cities	33	55	..	15%
Medium Cities	75	79	..	14
Small Cities	13	50	..	8
All Cities	42	61	..	13
PACIFIC NORTHWEST				
All Cities	31	30	54	..
ALL SECTIONS				
Large Cities	57	72	18	..
Medium Cities	52	67	11	..
Small Cities	29	45	16	..
All Cities	54	65	16	..

TABLE 2

Conversion jobs half gone

	TOTAL OILHEATING IN USE	
	Conversion Burners	*Complete Units*
NEW ENGLAND		
Large Cities	75%	25%
Medium Cities	63	37
Small Cities	62	38
All Cities	69	31
MID-ATLANTIC		
Metro. New York	47	53
Large Cities	57	43
Medium Cities	56	44
Small Cities	60	40
All Cities	54	46
SOUTH ATLANTIC		
All Cities	21	79
MIDWEST		
Large Cities	45	55
Medium Cities	33	67
Small Cities	43	57
All Cities	41	59
PACIFIC NORTHWEST		
All Cities	29	71
ALL SECTIONS	49	51

TABLE 3

Number of Service calls exclusive of Annual Overhaul

	Service Calls Per Burner	KIND OF EQUIPMENT IN USE	
		Conversion	Complete Units
New Eng.	2.16	69%	31%
Mid-Atl.	1.70	54	46
So. Atl.	1.08	21	79
Midwest	1.70	41	59
Pac. N.W.	1.41	29	71
All Sec.	1.71	49	51

TABLE 4

Efficiency Improvement In Replacement Sales

	EFFICIENCY	
	Worn Out Old Job	New Job
New England	59%	78%
Middle Atlantic	58	77
South Atlantic	59	77
Midwest	61	74
Pacific Northwest	52	74
All Sections	59	76

jobs in that area last year were in neighborhoods where they could not get gas.

We feel that this is a very important table because it is the first time to our knowledge its implications have been explored.

Another completely new study this year is shown in TABLE 2 where we see that half of the present oilheating jobs in use are conversion burners operating in boilers or furnaces originally designed for coal. We know from earlier studies that only about a third of installations going in today are conversion burners in coal boilers or furnaces, but, of course we have a considerable heritage of that type from earlier years.

Notice the difference between New England and some of the newer oilheating sections like the South Atlantic and Pacific Northwest. It is quite amazing to notice that in the large New England cities three-fourths of the oilheating in use is still the conversion burner in an old heating plant.

The areas retaining a high percentage of these conversion jobs should be happy hunting grounds for replacement sales. Looking back to the April issue of FUELOIL & OIL HEAT, page 83, where we had the annual analysis of installations by states, we find this assumption well supported.

In New England, for example, 24.8% of all 1955 installations were replacements of old oilheating equipment; this compares to 14.8% in the country as a whole. At the other end of the scale we notice in that same table that in the South Atlantic states replacement sales last year were only 9.9% of total new installations . . . and of course that is the area in this present study having the highest ratio of complete units in operation.

TABLE 5

Acceptable Efficiencies in opinion of Dealers

	CO_2	Stack Temp.	Indicated Efficiency
New Eng.	8.5%	627°	75%
Mid-Atl.	10.4	649	78
So. Atl.	9.0	659	74
Midwest	8.5	600	76
Pac. N.W.	8.0	658	74
All Sec.	9.3	633	76

Along a similar line of thinking, we have carried some of the totals from TABLE 2 into TABLE 3. Primarily, this table was designed to show the number of service calls per burner during 1955 not including calls for the annual tune-up and cleanup job where these were provided. Here the pattern again runs true to form: New England with highest ratio of conversion burners operating in old heating plants has much the highest number of service calls per burner operating. The South Atlantic states where the great majority of oilheating is in complete modern units has the fewest service calls per burner.

When the old job is replaced by a modern oilheating unit there's a very real increase in the operating efficiency in the home. We carry this thought in TABLE 4. Again, it is important to take a minute to be sure you know what this table portrays. We are not saying that the first column represents the typical conversion installation, but rather it represents the ones that are worn out from long service, and where replacement with modern equipment is justified as an investment. We see that the typical old job that was a candidate for replacement had an efficiency of 59% and the new job that replaced it had a 76% rating.

In discussing efficiencies here, the dealers are generally measuring this only from the standpoint of CO_2 and stack temperature, such as they would get from a stack loss curve. It is interesting to notice the uniformity in this table by sections of the country. The only purpose then, in using all of the figures was to show that the conclusions are broadly based.

The question of efficiencies of new replacement installations brought about some further questions to the reporting group as to what they consider "acceptable" oilheating efficiencies for the general run of customers whose burners they service. Specifically we asked them what they considered the lowest CO_2 and the highest acceptable stack temperature. Then we have filled in the third column of the table from a stack loss chart. It is quite noticeable that the Mid-Atlantic dealers think in terms of much higher CO_2 than the average groupings from the other sections of the country. On the other hand the Mid-west dealers are more concerned about keeping down the stack temperatures.

Once the dealer has fixed in his own mind what minimum efficiency he considers acceptable he will logically try to bring all of his service responsibilities up to that level. If he falls much below his own concept of what's right he will just as logically make an effort to sell a replacement job.

Oilheating and Cooling set for Maine Institute

A TWO YEAR COURSE in heating and airconditioning will begin in September at the Maine Vocational-Technical Institute, South Portland, Me., a state educational institution. The course, developed with the co-operation of the Maine Oil & Heating Equipment Dealers Association, Portland, Me., is open to high school graduates and is the equivalent of a Junior College in trade education.

The outline of the course proposes a first and second semester devoted to theory, shop, mathematics, applied physics and drafting as applied to heating and airconditioning. The third semester has been set up for studies in theory, shop, English, business management and electricity; the fourth and concluding semester would concentrate on still more theory, shop and business management, plus human relations.

The education committee of MOHEDA who worked on this project consists of: Ed Allen, Bill Roberts, Frank Lathe, Charles Hamm, Robert Putinton. Earl Hutchinson is principal of the school.

Service sustains the Industry

Not financially, of course, but it can make a Lot of People like Us

As THE OILHEATING INDUSTRY grows, not only in size, but also in management intelligence, the service departments of the nation get more attention from the front office with each passing year. This trend has been accelerated naturally by the growing impact of gas and electric competition for the heating dollar.

Both of those competitive industries have less service requirement than does oilheating, primarily because of the simpler mechanism of their facilities. They also have considerable free assistance from the local utilities that supply gas and electric fuels—not so much through altruism, as through the safety concept. An incompetent serviceman cannot do much damage with oilheating, but he certainly can where the other fuels are used.

This is the second year in which the service management analysis has been moved out of its long established spot in the January issue of FUELOIL & OIL HEAT and published, instead, in the May number. Our present thinking is to keep it that way in future years.

A very excellent and representative group of dealers helped us with the study this year. They furnished a good many figures from the records of their own 1955 operations. They do this work in a spirit of helping the industry as a whole; at the same time recognizing that the composite analysis when published will be useful in their own management problems.

The dealers reported from all sections of the country—although there were too few from the central South and South West to identify those sections separately in the tables. There was good representation from the five principal geographic areas that we generally use.

TABLE 6 shows the average size of dealers reporting in the study. Notice that they look after 1,276 burners in a typical operation. These, of course, are residential or small commercial burners using No. 2 oil. Then we notice in the table that 43% of the companies render some service on the larger burners firing residual fuels, and they average 41 such accounts where they do any of this work. There is quite a geographic variation, both in size of reporting dealers and in the number who take an interest in heavy oil equipment.

A dealer with 1,276 accounts on service is larger than the average of all dealers in the country, but at the same time he is typical of oilheating dealers that we normally visualize in thinking of the industry. It is better in a service management study to have typical dealers rather than average because they will have more complete records, and be in better position to cooperate.

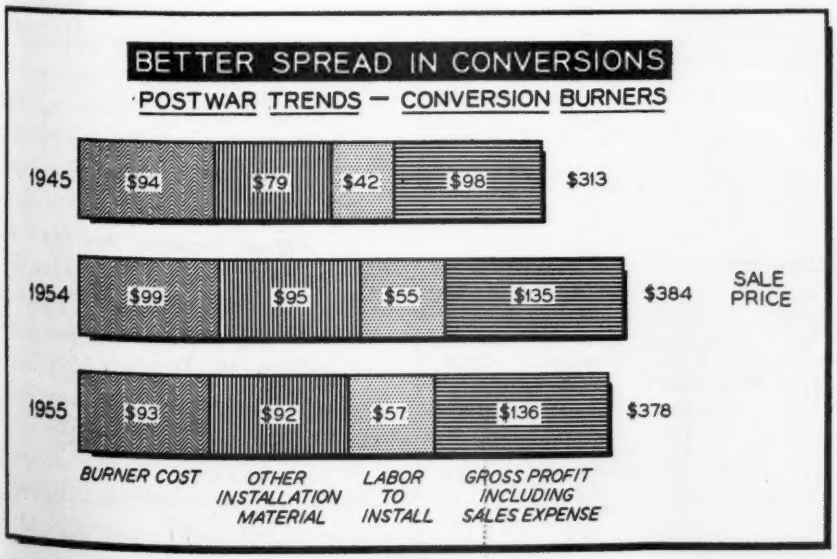


TABLE 6

Average Dealer Services 1,276 Accounts

	ACTIVE SERVICE ACCOUNTS		
	No. 2 Oil	*Residual*	*Servicing Residual*
New Eng.	2265	78	30%
Mid-Atl.	1300	32	33
So. Atl	914	32	50
Midwest	552	27	57
Pac. N.W.	1714	61	69
All Sec.	1276	41	43

TABLE 7

Oil Companies Service 64%

	Fueloil Distributors	*Heating Dealers*	*Indep. Service Co.'s*
New England	74	17	9
Mid-Atlantic	77	15	8
South Atlantic	52	35	13
Midwest	40	39	21
Pacific N.W.	66	17	17
All Sections	64	23	13
Large Cities	69	16	15
Medium Cities	61	25	14
Small Cities	55	39	6

Fueloil distributors appear to handle about 64% of all oilburner service in the nation as we see in TABLE 7. Following very much the pattern of other years, this development is most advanced in the Northeastern states and it is least noticeable in the Midwest. That central area is the only broad region where general heating dealers and independent service companies do more than half of this business.

It is interesting to notice in this table the difference between large, medium and small cities. By way of explanation, the large city in this study has a population of 250,000 or more; a small city has less than 25,000; and

TABLE 8

Installation Costs Conversion Burner

Not including burner or unit

	— INSTALLATION —	
	Materials	*Labor*
New England	$85	$53
Middle Atlantic	103	66
South Atlantic	98	50
Midwest	84	51
Pacific Northwest	74	50
All Sections	92	57
All Large Cities	84	58
All Medium Cities	99	55
All Small Cities	102	55

the medium city is in between. Oil men dominate oilburner service to a greater degree in the larger markets, and this is de-emphasized as the towns get smaller. This means that heating dealers get much more of the small town business than they do in the large places. The independent service company, as we see in the table, cannot do much in small cities, but makes a pretty good showing in large and metropolitan areas.

The differences between the findings of this study and those of last year are not very large and might be considered as resulting from minor variations between the reporting groups. For example, last year we found that the oil men did 63% of the oilburner service business compared to 64% this year. In the 36 cities studied by the organization, Oilheating Market Reports, New York, for cooperative campaigns, it was learned that 61% of oilburner service was rendered by fuel-oil companies in 1955.

Findings shown in TABLE 8 are not strictly service department operations, but rather they tie in with our annual chart on conversion burner economics. This table lists the average costs of installation materials other than the actual burner or heating unit itself. Again, it shows the average reported cost for labor to make a simple conversion installation. The sectional differences are considerable, but are in line with what would be expected.

The more surprising part of the table is where we have lumped the figures of all large cities from all sections of the country and then all medium and small cities. Notice how the cost of installation materials rises as the city decreases in size.

This is probably a reflection of annual volume plus the fact that the larger cities have keener competition among the supply houses. The labor cost is the same in the medium and small cities, and a little higher in the large ones, which is to be expected.

In the chart you will notice the comparison between 1955 and 1954. Notice that the average selling price of the conversion burner is down. The wholesale cost of the burner is down, and so is the miscellaneous installation material. The labor cost is up two dollars, and the gross profit up one dollar which shows that the dealer is, at least, no worse off than he was a year ago.

Around the industry there's a lot of talk about service department losses. TABLE 9 shows that there is reason for this viewpoint. Yet the aggregate losses are quite modest. Notice that 45% of the dealers made a little profit on service while 55% lost money. In general the larger companies have a harder time making the service department pay. An important factor in this conclusion is that the larger companies are in the fueloil business, and they try to be nice to the customers to hold their oil business. This is not universally true and it is not a big consideration in the oilheating industry, but it carries about enough weight to tip the scales toward the loss side. If we take all the reporting companies we find that their average service billing was $37,425 and their average loss for the service department was $1,863 or 5%. This is not at all serious, unless a company is depending upon service revenue for a majority of its income.

There was a pick-up this year in the number of customers who got an annual cleanup and overhaul of their oilheating equipment. This climbed to the very impressive figure of 56% in

TABLE 11

Minimum Charges Are Higher

	Minimum Charge Per Call	Free Service
NEW ENGLAND		
Large Cities	$4.68	9%
Medium Cities	4.04	6
Small Cities	3.54	11
MID-ATLANTIC		
Metro. New York	4.73	16
Other Large Cities	4.07	20
Medium Cities	3.58	13
Small Cities	4.15	19
SOUTH ATLANTIC		
All Cities	3.58	13
MIDWEST		
Large Cities	5.80	15
Medium Cities	4.22	11
Small Cities	3.60	12
PACIFIC NORTHWEST		
All Cities	6.27	4
ALL SECTIONS		
Large Cities	4.93	14
Medium Cities	4.07	10
Small Cities	4.05	14
All Cities	4.50	13

TABLE 9

Did Service Make Money?

	PROFIT COMPANIES			LOSS COMPANIES		
	Percent of Total Companies	Average Billing	Average Profit	Percent of Total Companies	Average Billing	Average Loss
New England	40	$57,920	$5,153	60	$108,560	$14,001
Middle Atlantic	33	30,225	3,232	67	38,329	6,257
South Atlantic	66	40,500	2,150	34	15,258	1,558
Midwest	59	24,018	2,678	41	11,043	3,051
Pacific Northwest	52	18,601	1,194	48	34,665	1,234
	45	$32,828	$3,161	55	$ 41,187	$ 5,974

TABLE 10

More Service Contracts

	Including Parts Customers	Price With Parts	Without Parts Customers	Price Without Parts	ANNUAL OVERHAUL NOT ON CONTRACT All Customers	Average Price
New England	20%	$26	11%	$18	18%	$10
Middle Atlantic	27	24	20	18	32	11
South Atlantic	4	20	2	18	49	8
Midwest	..	..	3	13	31	11
Pacific Northwest	3	24	11	18	17	11
1955—ALL SECTIONS	15	24	12	17	29	11
1954—ALL SECTIONS	13	25	12	17	26	12
1953—ALL SECTIONS	13	22	7	18	26	12

TABLE 12

Service Departments Sold 15% of all Burners

	Share Total Sales	Were Rewarded, Percentage
New England	7%	5%
Middle Atlantic	20	4
South Atlantic	17	5
Midwest	15	4
Pacific Northwest	5	4
All Sections	15	4

TABLE 13

Annual Incomes Are Up

	Servicemen Earned In 1955
New England	$5,394
Metro. New York	5,441
Other Mid-Atlantic	4,801
South Atlantic	4,469
Midwest	5,192
Pacific Northwest	5,791
ALL SECTIONS	
All Large Cities	5,530
Medium Cities	5,124
Small Cities	4,642

TABLE 14

Wage Rates Up Again

	INSTALLATION MEN		SERVICE MEN	
	High	*Low*	*High*	*Low*
NEW ENGLAND				
Large Cities	$2.11	$1.75	$1.97	$1.78
Medium Cities	1.91	1.47	2.30	1.83
Small Cities	1.89	1.53	1.84	1.55
MIDDLE ATLANTIC				
Metro. New York	2.62	1.97	2.52	2.05
Large Cities	2.33	2.02	2.23	1.71
Medium Cities	1.98	1.59	1.99	1.68
Small Cities	2.08	1.61	2.02	1.58
SOUTH ATLANTIC				
All Cities	2.06	1.60	2.06	1.53
MIDWEST				
Large Cities	2.54	2.13	3.06	2.16
Medium Cities	2.19	1.73	2.15	1.98
Small Cities	2.33	1.80	2.21	1.81
PACIFIC NORTHWEST				
All Cities	3.24	2.70	3.04	2.76
1955—ALL SECTIONS	2.32	1.85	2.34	1.90
1954—ALL SECTIONS	2.26	1.78	2.21	1.86

1955 compared with 51% in 1954, and with 46% in 1953. The detail of this is shown in TABLE 10.

We find 15% of oilheating customers having annual service contracts including parts, another 12% with contracts that do not include parts. Then an additional 29% who are not on contract got the annual overhaul. Price levels for the three groups showed very little change from the previous year with the only movement being slightly on the downward side. The more customers we can get onto contracts, or at least on a yearly overhaul agreement, the better chance we have of keeping oilheating satisfactory to all interested parties.

In TABLE 11 we see that on a nationwide basis the average minimum price for "call service" is $4.50. There is considerable variation ranging from a sectional low of $3.58 in the South Atlantic states up to $6.27 in the Pacific Northwest.

In making this same study last year we found the average minimum charge over the country to be $4.15 for the year 1954, and $3.89 for the year 1953. This shows quite a strong upward trend, but quite obviously justified under typical operating conditions.

Some key men in the industry are looking forward to the day when oilheating service will be on some universal plan that will allow the mechanics to be fully occupied every hour of the day. This should help bring down the cost.

In that connection we made a study of the employment of so-called service men. Most dealers, of course, use the same men on service and installation work. Some others separate their men between service and installation activities — then they'll have two or three combination men around the place . . . which spoils any chance of analyzing the workload. However, there was a fair group that kept all service work separate from any installation work and from these dealers we can get a good performance index. Dividing all their service customers by exclusive servicemen we find that the typical man in 1955 took care of 517 customers. There were some companies where the individual serviceman looked after more than a thousand, but if we think of the typical 517 customer mechanic, he could be fairly well supported with modest service costs.

The amount of free service keeps crawling up. In 1955 it represented 13% of all non-warranty service, while the year before it had been 11% which again was an increase over the year just prior.

In TABLE 12 we see that service departments sold 15% of all the new installations of oilheating equipment for 1955. This reaches its highest emphasis in the Middle Atlantic areas and its lowest in the Pacific North West where most of the business is done in new homes.

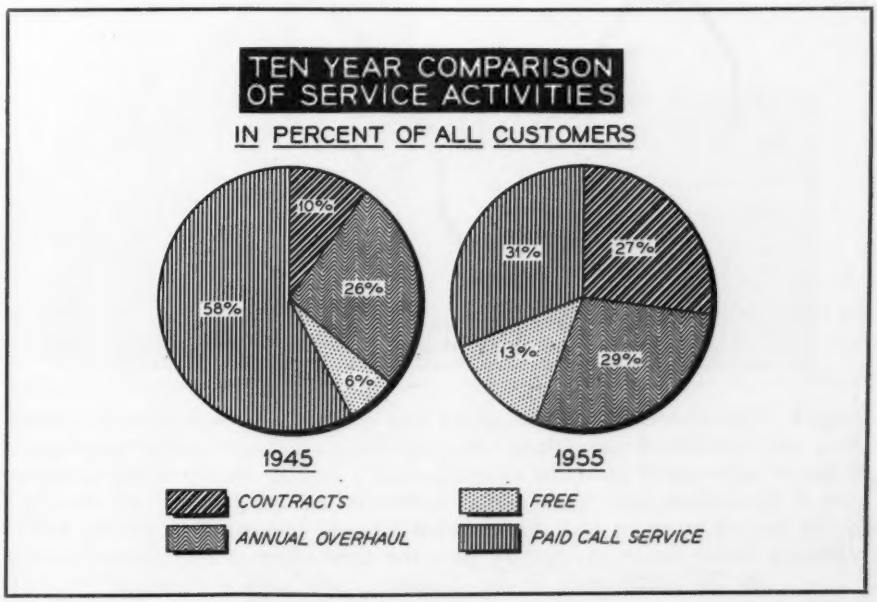
As a rule the servicemen got credit on the replacement installations that they recommended because they believed they were necessary. The men were paid an average of 4% commission on these sales. There was almost no variation between sections of the country on this point.

In the country today, there are around 8¼ million oilburners operating while we had only 119,000 replacement sales last year. As the average age of burners increases in the years ahead service departments will gain added importance in the replacement function.

While the servicemen were earning a little pocket money from the sale of equipment this helped to bring their average annual income up to $5,192 in 1955. The year before it had been $4,974. You can see the detail of this in TABLE 13. First we show the incomes by geographic sections, and then we show the differences between large, medium and small cities.

This will let you make comparisons in your own type of market. Notice for example that the large cities run 7% above the general average; the medium cities only slightly below it; and the small cities average 11% under the overall figure. Thus, if you are located in the Midwest: take the average $5,192 and raise it or lower

(*Please turn to page 122*)



Towards perfect heat Control

M-H electronic Moduflow System for Homes is out of the Realm of usual Thermostats

by
J. W. Schulz

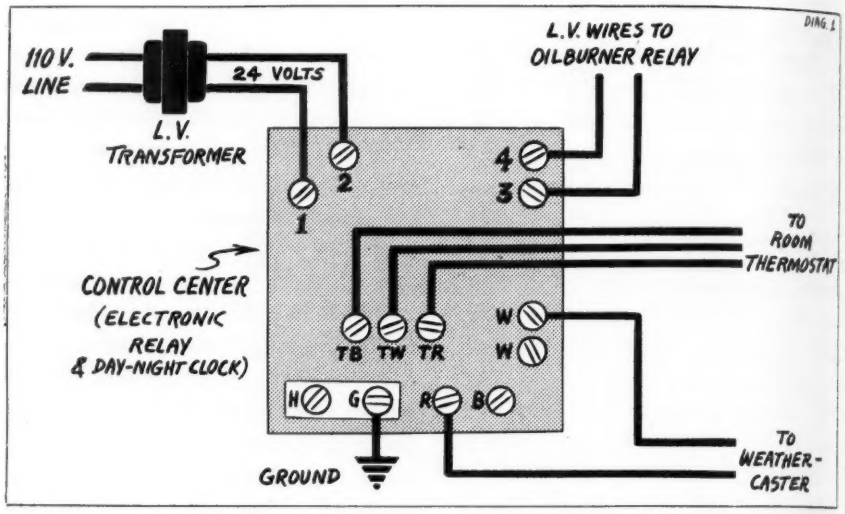
THE ROOM THERMOSTAT has importance that seldom is realized fully or expressed adequately in words.

An undeniably important function of oilheating lies in producing comfort during the heating season. Comfort can be achieved only through use of an excellent room thermostat. Improve the action of the room thermostat, and you improve the heating comfort.

Among the thermostats used with early oilburners was the 10-ampere line-voltage model. It was not unusual for this model to keep a burner running fully 50 minutes on a mildly cold day, then keep it idle fully three hours.

Somewhat different cycling was endured in different homes suffering the curse of this model thermostat. But in every case the heat was of a crude "on-off" pattern.

The comfort pattern of oilheating is infinitely better today, because the thermostats installed in recent years give rapid cycling, short "on" and "off" periods. Increased thermostat sensitivity, for one thing, is responsible for this improvement. Also, most oilburner room thermostats installed in recent years are equipped with built-in electric heaters. When one of these modern thermostats snaps "on" and starts the oilburner, its tiny, built-in electric heater warms up and provides slight internal heat for the thermostat. Set up for this, a typical modern thermostat can stop the burner in five minutes, though no heat or negligible heat from the furnace or boiler reaches the rooms in that length of time.



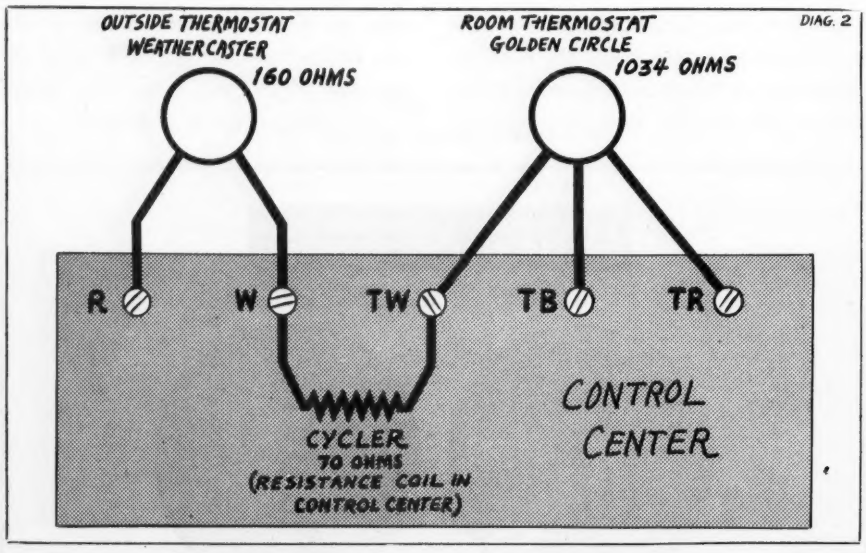
Diag. 1—*Low-voltage transformer at upper left provides the 24-volt current to power the Control Center (no line-voltage wires connect to this). Electronic room thermostat and outdoor Weathercaster connect to Control Center simply as shown; but special precautions in text of article must be observed in installing the low-voltage wiring involved. Notice terminal G must be connected to ground.*

The 50-minute "on" periods of crude, early, oilburner thermostats thus contrasts with the five-minute "on" periods modern thermostats can provide.

Excepting that we may continue to design for still shorter "on" periods to attain even smoother heating, have we reached the ultimate in the control of heat in homes?

Are we at the point at which no further improvement in home-heat control is possible, because no better room thermostat can be developed?

Different opinions enter into answering these two questions. According to one line of reasoning for example, the increased use of the electric heater principle in thermostats is giving, in addition to desired short cycling, an objectionable "temperature droop" effect. Because of this, with the thermostat setting unchanged the house temperature may drop a few degrees when the outside temperature drops greatly, say from 50°F. to zero.



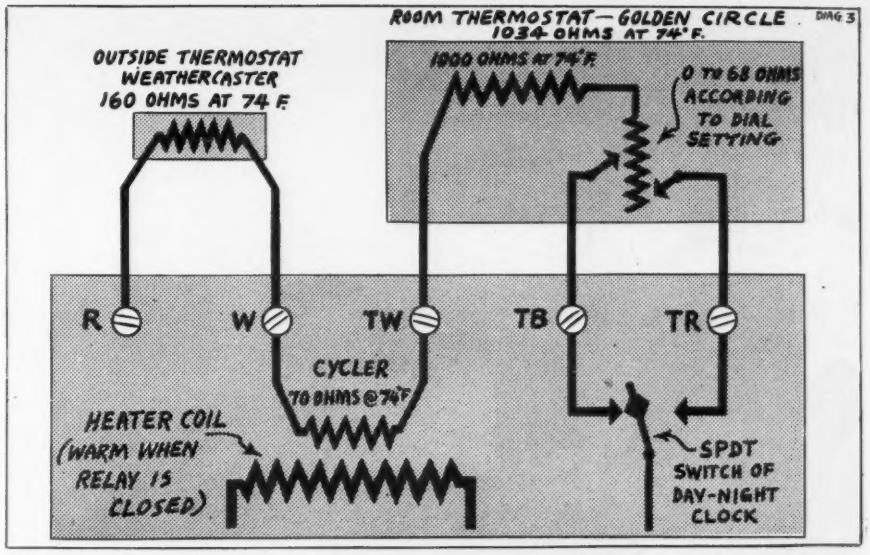
Diag. 2—*The Control Center measures only total change in resistance of these three series-connected thermostatic elements. Hence a change in the temperature of the Weathercaster gives the same effect as a smaller change in the temperature of the Golden Circle; and a rise in the temperature of the Cycler (caused by the burner running and the resultant flow of current through the heater resistance shown heavy in Diag 3) gives the same effect as a proportionate rise in the temperature of the Golden Circle room thermostat.*

Of course such a drop is not expected every day in most American cities. But a great reduction in outside temperature should not result in even a few degrees drop inside a house.

The objective of this article, however, is to give answers to the two preceding questions in terms of the thinking of the engineers of the Minneapolis-Honeywell Regulator Company. Their thinking gave these engineers a unique approach to the problem of attempting to provide perfect control of the heat in a modern house. The M-H electronic Moduflow system developed through this unique approach already is in use in thousands of homes, thus should be understood by every man who considers himself well informed on modern oilheating controls.

Servicemen in many cities are encountering the M-H electronic Moduflow system when making their regular calls. To be capable of servicing their customers' installations, these servicemen must understand this new Moduflow system.

Aiming towards perfect heat control, the M-H engineers developed not merely another thermostat, but the four-part heat-control system which will be described in this article. The performance of this is out of the realm of any conventional thermostat, affected only by room temperature. As you read on, form your own ideas regarding the right-or-wrong thinking of these M-H engineers.



Diag. 3—*Because a modified Wheatstone bridge is used to weigh the value of these resistances electronically, with the system in balance a drop in temperature of any of the three series-connected thermostatic units causes the burner to start. Not shown here is still another resistance arrangement, set by the serviceman to calibrate the room thermostat when the system is first placed in operation. Calibrating the system is easy for a man who follows instruction!*

Four reasons caused these engineers to develop this electronic heat-control system for domestic oilburners.

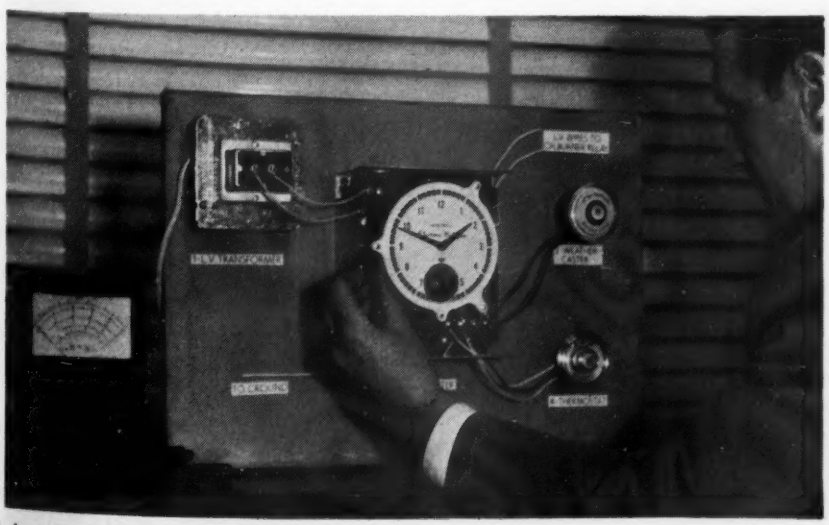
First reason: They emphasized temperature-response lag caused by thermostat bulk or mass. That's time lag. Minutes elapse between the time the room air around a conventional thermostat cools to the degree that heat is needed, and the time the thermostat closes its circuit.

An iron cannon ball gives an example of great temperature-response lag. Surrounded by air that changes temperature constantly, the cannon ball stubbornly tends to remain at the same temperature.

In contrast, a metal wire as fine as a hair responds rapidly to temperature changes of the air surrounding it. It has little bulk for its great area.

A conventional thermostat employs a heat-sensitive bellows or bimetal strip to snap a switch on and off in response to temperature changes. Work is done in snapping the switch, making the thermostat a machine that does work as the result of temperature changes. To do its mechanical work snapping the switch, the heat-sensitive bellows or bimetal strip must have some certain minimum bulk or mass; its temperature response (related to lag) is neither nearly as bad as that of the cannon ball, nor nearly as good as that of the metal wire as fine as a hair.

M-H engineers find the time lag of a conventional thermostat negligible under usual conditions. But under unusual conditions, involving for example the opening for a few minutes of an outside door of a living room in which the thermostat is located, the latest M-H thinking is that a conventional, snap-acting thermostat responds too slowly for literally perfect control of the heat in the house.



Laboratory set-up *used by the author in preparing this article. Here the author checks thermostat calibration, an extremely simple procedure. Though certain servicemen won't like this, those capable of instrumentation will be glad to learn that an ohm-checking instrument really must be used for proper, most thorough servicing of these electronic controls. Author used the Simpson 260, his favorite volt-amp-ohm checker, shown here at left. The board was arranged to be taken to jobs, hooked up quickly to function as an operating panel. It actually was used in several homes during preparation of this story.*

Close-up *of checking ohms of Weathercaster. Two leads of this control simply were disconnected from Control Center and connected instead to the Simpson 260. On-the-job checking of each external electronic component of the Moduflow system is just as simple as this.*

M-H engineers accordingly designed to minimize the time-lag of their new electronic room thermostat, used in the electronic Moduflow system, by employing in it a fine thread of wire to sense the room temperature. Thanks to the magic of electronics, the new thermostat (called the Moduflow Golden Circle Thermostat) contains no switch which its heat-sensitive element must snap on and off. It is not a machine which must do work (switch snapping) as the result of changes in temperature of the air surrounding it.

The result is reported to be an immense improvement in response to temperature changes. M-H says the new electronic thermostat responds to room temperature changes eight times faster than does the conventional, snap-acting thermostat.

The M-H electronic thermostat is said to have, in addition, tremendous temperature sensitivity that puts it in a class by itself. A two-degree drop in temperature causes a conventional thermostat to snap its switch shut, say the M-H engineers, but a one-quarter degree temperature drop is sufficient to cause the electronic Moduflow thermostat to respond and turn on the heat. The design aim was to gear the electronic Moduflow thermostat rigidly to slightest and most rapid changes in room temperatures.

Second reason for the new electronic Moduflow system: The conventional thermostat knows only the temperature of the air immediately around it, and can thus respond but slowly to great changes in outside weather. Located within a modern, insulated home, a conventional thermostat is insulated from outside weather changes as effectively as it would be if you wrapped it in a blanket of rock wool 4" thick, put it in a shoe box, and then placed it outdoors to report on changes in outside temperature.

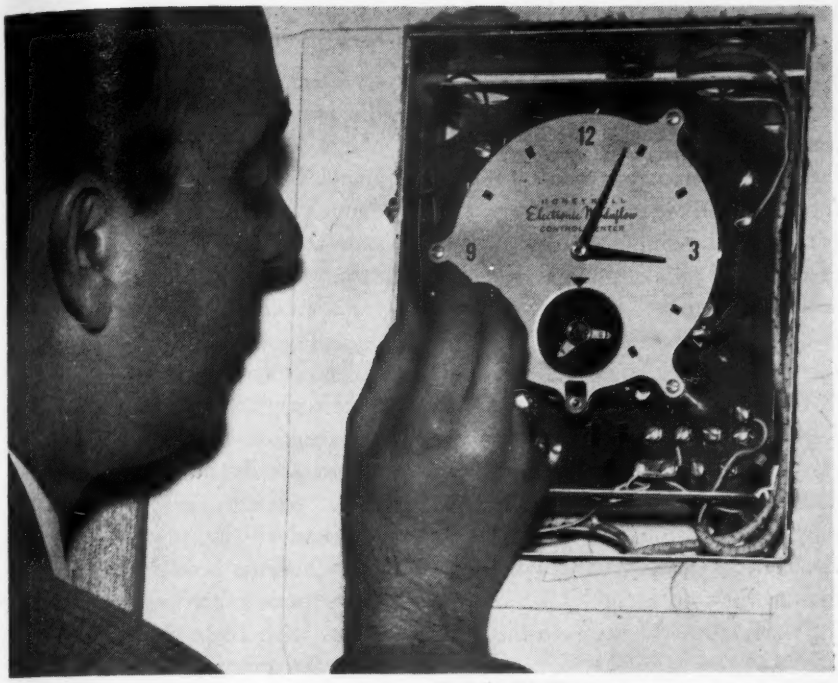
The second reason for the new M-H electronic Moduflow lies, then, in what M-H engineers find to be a need to tip off the oilheating plant promptly about changes in outside weather.

These engineers believe that a sudden let-up of strong sunshine, which has been helping greatly to heat a house on a winter's day, should be reported promptly to the oilheating system. A sudden increase or decrease in outside temperature should affect the on-off cycling of the oilburner promptly, says the M-H electronic Moduflow enthusiast, for the on-off cycling should be altered as rapidly as possible to conform to the change in the heat loss of the house.

The Moduflow system employs a second electronic thermostat, called the Weathercaster, located outdoors. This senses every change in outside weather immediately. Following a change, it alters the oilburner on-off cycling immediately so that this matches the new kind of weather.

The M-H line of thinking is that a sudden let-up of strong sunshine, or

Connecticut *new home equipped with M-H electronic Moduflow system studied among others in preparing this article.*



Face *of "Decorator Model" (electronic relay and day-night clock unit) has been removed, simply snapped off, to check thermostat-calibration screw.*

sudden drop in outside temperature, obtains response from a conventional room thermostat only after a considerable time lag. Before the oilburner on-off cycling is altered to match the new weather conditions, a chill creeps into the house. In its effort to provide perfect heat control, the Moduflow system avoids this chill effect by the action of its outside thermostat, the Weathercaster. A sudden rise in outside temperature, or start of strong sunshine, similarly causes the Weathercaster to switch the burner promptly to cycling that provides less heat.

Third reason for electronic Moduflow: Because they find the "temperature droop" effect of modern, heater-type thermostats objectionable, the M-H engineers decided to eliminate it from this Moduflow system. This "temperature droop" effect of heater-type thermostats was described earlier in this article.

Eliminating the "temperature droop" from the M-H electronic Moduflow would cause the temperature to remain the same at the thermostat as the outside temperature became lower and lower, instead of dropping as it does as the result of using a rapid-acting, heater type thermostat.

The Moduflow system does use a heater (not in the thermostat, however; see Diag. 3) to provide burner "on" periods as short as needed for smooth heating. If it were not compensated for, this heater would result in "temperature droop" at the room thermostat. But the Weathercaster, located outdoors, compensates for the heater effect and thus prevents "temperature droop" effect and its disadvantages.

Going still further, the Weathercaster over-compensates the effect of the heater, and causes the house temperature to increase slightly as the outside weather becomes colder. This leads to the fourth reason for the electronic Moduflow system.

Fourth reason: Eliminating cold-wall and cold-window discomfort effects during cold weather.

Set the thermostat in your home at 72°F., and on a moderately cold day when it's 50°F. outdoors sit close to a cold wall or cold window. You are comfortable to a certain degree. Sit in the same place during extremely cold weather, say zero outdoors, and with the thermostat still set at 72°F. you will be chilly and uncomfortable.

Radiant heat is involved, loss of radiant heat from your body to windows and outside walls that become colder and colder as the outside temperature drops. Air temperature also is involved, for with a thermostat set at 72°F., though the inside wall temperature remains at 72°F. as the weather becomes colder and colder, the air temperature drops near the windows and outside walls.

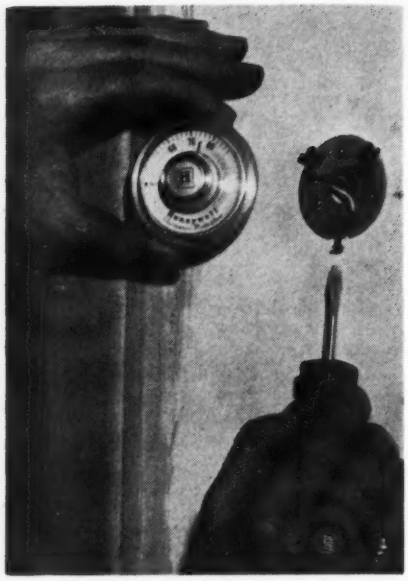
You don't have to sit near a window or outside wall to suffer this discomfort caused by colder and colder walls and windows, and colder and colder room-air in contact with them. To a lesser degree, this discomfort affects you anywhere in any room having windows and outside walls.

The popular way to avoid this discomfort, say M-H engineers, has been to increase the house temperature progressively as the outside weather became colder and colder. Comfortable at 72°F. during mildly cold, 50°F. weather, a homeowner would set up the thermostat gradually as winter brought on colder weather; for zero weather, often he would wind up with the thermostat set at 75°F. or higher.

In the Moduflow system, the Weathercaster located outdoors serves the function of raising the house temperature automatically as the outside temperature drops.

Over-compensating for "temperature droop" effect, the Weathercaster not only prevents objectionable

Removing *Weathercaster (outdoor control) from the Connecticut home studied to prepare this article.*



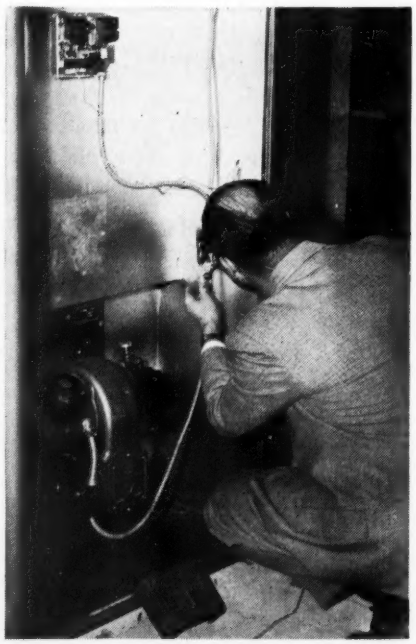
Loosening *one screw at bottom of mounting plate permits removing Golden Circle room thermostat. Outer rim of thermostat is turned to set the night temperature; knob in center sets the day temperature.*

temperature droop — in addition it automatically provides slightly higher house temperatures during severely cold weather than it provides during moderately cold weather. The effect is gradual, of course. For each one-degree drop in outside temperature, the Weathercaster has the effect of raising the setting of the room thermostat a small fraction of a degree.

M-H electronic Moduflow systems come in several different sets. The four-piece set covered by this article and shown in the accompanying photographs and drawings is for forced-air heating systems. It has the "Decorator Model" day-night clock and electronic-relay unit suitable for installation in the kitchen, for example, of a new home. Another four-piece set for forced-air installations is identical except that its clock is suitable for basement installation, is not as handsome as that of the "Decorator" unit. The two types of day-night clock set-ups are available for forced hot-water installations; electronic return-line thermostats are included in these, making them five-piece set-ups. For hot-water radiant floor-panel installations, a no-clock set-up is available; night set-back is not suitable for these installations. M-H engineers have shown ingenuity, and have attained remarkable success, in adapting the electronic Moduflow system to even one-pipe and two-pipe steam-heat systems.

Diags. 1, 2, and 3 have to do with the electrical principles and wiring of the Y711A four-piece package for forced-air installations; the accompanying photographs show the parts of the same package. These diagrams and photographs were prepared specially for this article by members of the FUELOIL & OIL HEAT staff.

To wire up a forced-air installation following the pattern of Diag. 1, you can simplify your wiring steps by first doing all your oilburner wiring as though you planned to use a conventional two-wire snap-acting room thermostat. First do a regular job of wiring the oilburner controls in the usual fashion—but don't install the room thermostat.



It all comes out here! *Proper starting and stopping of this burner, by the electronic Moduflow system whose parts are shown in the other photographs, is the end product of the entire Moduflow effort. Burner, stack control, and combination blower-and-high-limit control are wired as usual, of course. The four parts of the Moduflow system simply take the place of a conventional snap-acting room thermostat. A two-wire, low-voltage cable connects the thermostat terminals of the RA817A Protectorelay to the 3 and 4 terminals of the Control Center.*

Instead, after your oilburner set-up is wired completely, install and wire the four parts of the M-H electronic Moduflow system as Diag. 1 indicates. Terminals 3 and 4 of the Control Center (See Diag. 1) connect simply to the low-voltage thermostat terminals of an oilburner stack control, for example. If the electronic Moduflow system is keeping the burner idle, you can start the burner by putting a jumper across terminals 3 and 4 of the Control Center. Inside this Control Center, only a single-pole single-throw switch is connected to terminals 3 and 4; this switch is closed by a relay at any time that the entire electronic set-up decides the burner should be running.

Above all things, don't wire up as Diag. 1 shows before you read all the instructions in the excellent book that comes with these electronic controls. If you've never wired electronic controls before, you are in for some surprises. You must use special plastic-insulated wire that's not undersize, for example; you don't run Moduflow

(*Please turn to page 152*)

M-H field engineer *Ken Angelo checks basement electronic-circuit wiring in the Connecticut home. Trouble results if these wires are run close to and parallel to almost any other kinds of wires, including even telephone and door-bell wires—of course including line-voltage wires. Ken Angelo can check any electronic Moduflow installation thoroughly in a matter of minutes. He simply (1) uses a meter to check the ohm value of the indoor and outdoor thermostat circuits, and (2) checks each electronic circuit mercilessly for a ground. Whereas forced-air jobs have two circuits for him to check, hot-water jobs have three. The third is the circuit of a return-line thermostat used for hot-water, not used for warm-air.*

Oilheating the Canadian Prairies

Gas is cheap near the Wells; but major Emphasis is on Oil

by
V. M. Douglas

THE DIFFERENCE of opinion makes horse racing. Differences of opinion may make reporting of facts difficult. The recent struggle with income tax returns left most victims, patriots or chiselers, with a definite opinion that by following instructions, adding, subtracting, multiplying or dividing, for unknown reasons, a result would be obtained. That result was to be paid, not questioned.

The opinions that follow were obtained by personal discussion. By combining these opinions and interpreting each in accordance with circumstances which prompted the viewpoint, an idea of fuel and heating in Midwest Canada may be obtained.

Alberta has the oil Fields

Flying from Minneapolis to Winnipeg a man living in Calgary volunteered: "When I lived in a small town a few miles from Calgary, we burned oil; everyone, probably 90%, did. It was convenient, clean and economical. I had a three bedroom house. I had a vaporizing type burner, so burned No. 1 stove oil. Usually one barrel of oil, which cost me $7.65, would last about ten days during our coldest weather—20 to 40 below zero. As a rule it does not cost any more for heat in the coldest weather, for when it gets extremely cold the wind does not blow."

When asked why he spoke in the past he replied: "I have a position as a public official and now live in Calgary. Everybody within reach of natural gas mains burns gas. There is an unlimited supply and it costs much less than oil."

Asked how much less, he did not know. He knew of some who had tried L.P. gas where they could not get natural gas, and found it to cost much more than oil.

These statements, made by a man who was not identified with any fuel or heating activity, might well be typical of the general opinion of heating preferences in Alberta.

A few questions were asked of a man who knew about Saskatchewan. He summarized all by saying "Regina has oil running out of its ears; Saskatoon has a natural gas line and is pretty well converted where gas lines are in. Of course they have their lignite." That was supposed to be all anyone needed to know.

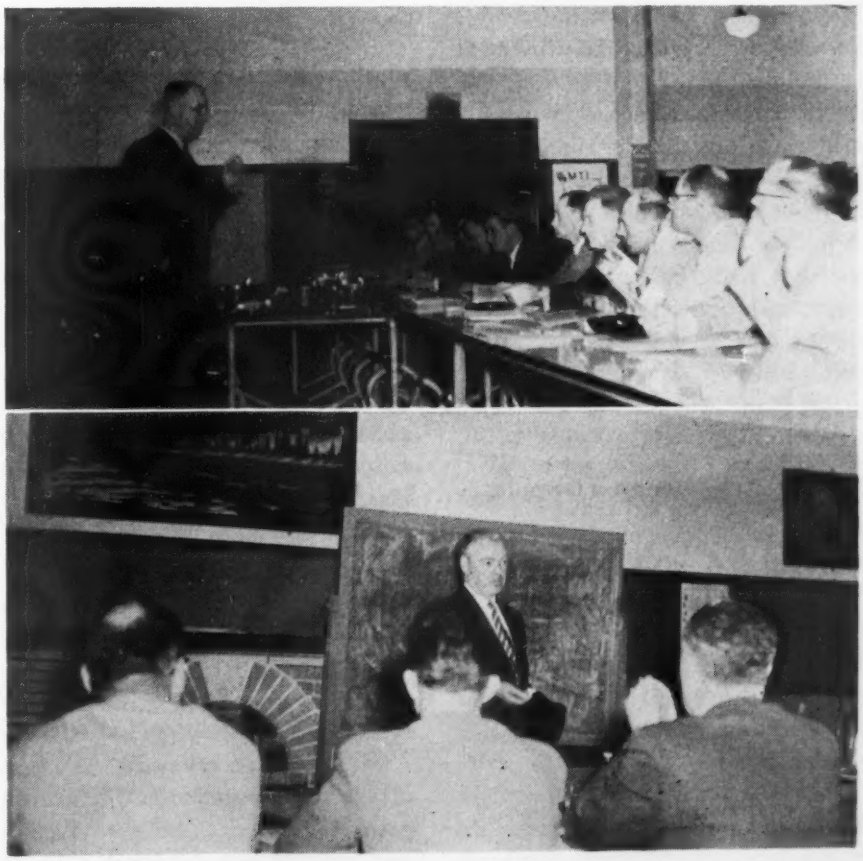
Manitoba favors Oilheating

The city of Winnipeg is a city of many opinions of its many sources of heat.

Mr. Counsell of the Winnipeg Chamber of Commerce: "You will understand I am not speaking as a fuel or heating expert. I do have many associations in my work and come into contact with all factors which enter into the welfare and economy of our city.

"From what I can see and hear I will venture a guess that we will have natural gas piped into Winnipeg by 1958. We have many methods of heating here. Saskatchewan lignite coal which was formerly priced at from $3 to $4 a ton, now commands $8 to $9. This is really low priced fuel, but most homeowners seem to be sold on oil. Home heating fueloil is delivered for 17¢ or 18¢ a gallon. That would make the cost equivalent to 14¢ or 15¢ for a U. S. gallon.

"The Winnipeg Central Heating Company furnishes both steam and hot water, each piped to certain residential districts, as well as to the downtown section. The steam or heated water is piped into homes and larger buildings where the flow is controlled by valves usually actuated by thermostats. Users pay for this heat on a meter basis, determined by the amount of water entering the return lines. This



Two views *of a heating school held by Heating Equipment and Supply Co., Winnipeg. The company sponsors the schools regularly and draws dealer attendance from all of Canada's Prairie Provinces.*

may be either condensed steam or hot water which has been cooled by radiation. The cost of this heat is generally considered slightly lower than heat provided by fueloil.

"We do not hear of electric heating here, except on an experimental basis. Hydro-electric has a minimum rate of 1¢ per kw after the higher initial rate is graded down to a quantity which would be used for heating. All residences are insulated and weather-stripped as standard practice, but I doubt if one cent electricity can be considered in a climate where we have a lot of weather 10-20 and more degrees below zero."

A Refiner reports Optimism

"We have a local market of approximately 35,000 homes using No. 2 furnace oil," reports B. Pitcairn, operations manager of North Star Oil, Ltd. He has reasons for his opinions.

"Most of our No. 6 fueloil is delivered by tank car, but we do find use for three trucks for local requirements. Our prices are 17.7¢ per Imperial gallon for No. 2 fueloil delivered; No. 6 oil is sold at 6½¢ per Imperial gallon, f.o.b. refinery. I have no definite knowledge concerning the delivery of natural gas.

"In contemplating fueloil requirements, we are thinking in terms of 1958. We are not greatly concerned over the introduction of gas fuel into Winnipeg. Imperial and ourselves are the only refineries here. We cannot meet present fueloil requirements. Assuming that gas will take some of our present market, Manitoba is large, is growing and will need all the fueloil we can produce."

The gas Company Viewpoint

Mr. Hayden, Winnipeg & Central Gas Co., confined his opinions to gas. "I believe it is largely a matter of politics as to when natural gas will be delivered to Winnipeg. The gas is available and there will be only a slight delay in piping when the law-makers reach a decision.

"There are two trends of thought among members of Parliament. One group thinks that Canadian produced gas should be retained entirely within the boundaries of Canada. With production in the Midwest and a large market in Eastern Canada, that would mean a pipeline laid through Ontario, north of the Great Lakes. Initially, the expense of this project would be so great that an excessive length of time would be required to recover the cost of going through this vast non-consuming area.

"No private enterprise would assume this obligation, for the necessary price of delivered gas to meet this cost would be too high to meet competition of other fuels. This would make it necessary for the Canadian government to subsidize an operation of this kind.

"The other faction favors an arrangement with the United States whereby Canadian gas would be piped into the Northern States west of the Great Lakes area. This would provide a large market at nominal cost for transmission lines. Then a reciprocal trade arrangement should be negotiated whereby the existing pipelines in the Eastern and East-Central States would be extended into Eastern Canada.

North-South trade Policy

"Those who favor the All-Canadian pipeline, use the argument that Canada should retain control and distribution of its natural resources in case of military conflict by either country. We do not think in terms of conflict between Canada and the United States."

The North-South trade policy is not new, nor does Mr. Hayden claim it as his idea. This situation has frequently been discussed concerning other commodities. To many, the East-West policy seems quite illogical whereby Eastern, Central and Far Western Canada attempt to carry on trade over hundreds of miles of sparsely settled Ontario and hundreds of miles of rugged Canadian Rockies. When there is only an invisible border between two friendly nations, North-South trade, without prohibitive duties, would seem economically reasonable and sensible.

Mr. Hayden continued: "As an indication of our optimism that natural gas will soon be delivered to Winnipeg, we (the Gas company) have installed storage tanks and a grid (network of pipes) to supply six districts having a total of 1,528 homes. These homes are receiving L.P. gas as a temporary measure until we get natural gas. We have requests for similar action for 2,800 additional homes. The cost of L.P. gas is somewhat on the high side except for temporary use.

The fuel Situation

Mr. J. H. (Harold) Brett, head of the Winnipeg Coal Exchange, presented some thoughts on the fuel situation. "Our lignite coal, mined in Saskatchewan by inexpensive open-pit operations, is used by many residences. It is also the primary fuel for power and production of central heating. By mixing our lignite with about 15% of import coal from the Central States below the border, we have a clean burning, high heat, low ash fuel at low cost. And we have a supply beyond any anticipated requirements for many years.

"Yes, coal has been largely replaced by oil for residential heating, largely because of the convenience, for the cost of coal is lower. The talk of natural gas does not concern me nor the coal industry. In the first place it is a political issue and may be debated for several years before action is taken.

"If and when natural gas is brought to Winnipeg the citizens will receive quite a shock. They are looking for prices the same as at Edmonton or Calgary. There is considerable difference in the price of natural gas at the well and after it has been transported a thousand miles.

Central plant System

"In my opinion our central plant distribution system makes the most sense of any. Any fuel can be burned more economically in large quantities. The idea of having a private power plant in every house means duplication of heating equipment, fuel delivery and storage—uncertainty as to fuel and many other costly disadvantages. The use of central plant heating means a highly efficient engineered plant. Provision can be easily made to use any of several types of fuel. If one proves more economical than another, it can be used, without changing the equipment, in thousands of building."

(*Please turn to page* 160)

Profits in Cooling

Installation Methods that cut dealer Costs and assure Efficiency; maintenance Contracts

by
J. R. Lewis

This is the concluding article in a second set written by Mr. Lewis and intended to make oilheating dealers more familiar with refrigeration principles, types of airconditioning systems available and, finally in this article, installation practices and maintenance hints.

Other articles in this series appeared in the March, April, May and June 1955 issues and in the February 1956 issue.

RESIDENTIAL AIRCONDITIONING became an important part of the industry when manufacturers perfected and produced the package type unit. This helped bring down costs which in turn created greater user interest and acceptance. As use becomes more widespread and installing dealers learn through experience how to keep installation time and cost to a minimum, there will be even more buyer interest and greater market potential.

A big contribution to the profit or loss for dealers is the time factor for men working on the job. To keep this time factor down and effect all reasonable savings comparable with best quality of installation, there must be some intelligent planning for all phases of the work. Many of the factors that are important apply for any type of commercial airconditioning work but special considerations are necessary for different classes of airconditioning. Not all can be included in a report of this type, but most of those which should be considered first are included in the following group:

For every residential installation:

1. Select the location, allowing space to get the components in place and space for completing necessary connecting equipment.
2. Allow space for access to handle normal maintenance.
3. Consider need to dissipate heat and avoid recirculation of hot air.
4. Study vibration hazards and remedies.
5. Remember noise problems may be a concern to the owner and also to neighbors.
6. Study difficulties resulting from condensation on:
   Cold water supply lines.
   Air duct supply.
   Cold refrigerant piping.
7. Examine motor sizes to establish that they are adequate for operating conditions to be expected.
8. Investigate power supply lines to determine that ample current is available.

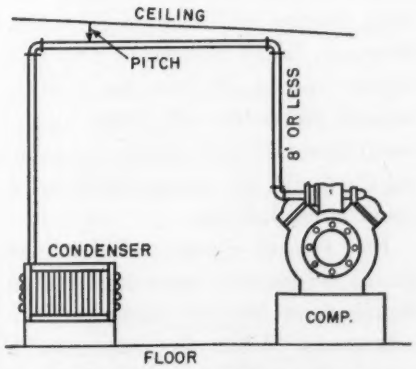
When condenser requires water:

1. Calculate peak load demand and establish availability of supply and drainage facilities.
2. Consider water hardness and other chemical properties which may have corrosive effect.

When components are not in a single unit:

1. Study interconnecting piping requirements for space and sizes.
2. Use equipment enclosures designed to protect against weather elements whenever machinery is out-of-doors.

Because the trend in this industry is toward larger air-cooled systems to accommodate both homes and small commercial spaces, the original package unit that was completely self-contained is now being separated. Frequently, the condenser and the compressor are installed in weather-proof enclosures some distance from the spaces being conditioned.



DIAG. 1 HOT GAS LINE

Thus, it has become necessary for the installer to include substantial quantities of refrigerant piping. This requires special attention for the hot gas line from the compressor to the condenser, for the liquid line from the condenser to the expansion valve and for the suction line from the cooling coil to the compressor.

The lines from the expansion valve to the cooling coil offer a special problem to assure proper distribution of the refrigerant to all parts of the coil surfaces which are capable of carrying the cooling load. However, this piping design is usually a part of the evaporator construction for the type of work now being discussed.

The reason that refrigeration piping design is complicated is because all refrigeration compressors lose some lubricating oil to the refrigerant vapor during compression. The refrigerant is capable of carrying varying quantities of lubricating oil. To avoid starving the compressor crankcase, this oil must be returned, usually by way of the refrigeration circuit.

For hot gas lines, there are three possible considerations and it makes no difference whether the condenser is of the water-cooled, air-cooled or evaporative-cooled type. Diag. 1 shows the most common arrangement, indicating how the line should be pitched in order to avoid having oil drain back to the compressor during periods of shutdown.

Diags. 2 and 3 indicate other possible equipment locations and, in each case, the design is intended to avoid having a liquid accumulation of oil on the head of the compressor at time of start up.

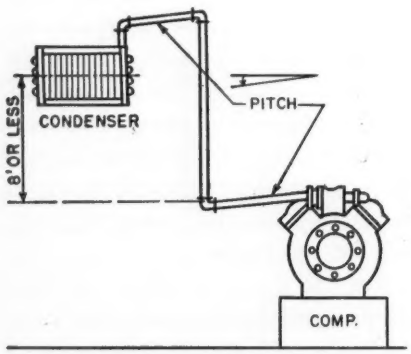
It is customary for Freon-12 horizontal piping runs to be sized on the basis of an average minimum hot gas velocity of 750 ft. per minute, and where the vertical rise is 8 ft. or more,

velocity usually is increased to 1,500 ft. per minute. This helps in carrying entrained particles of oil.

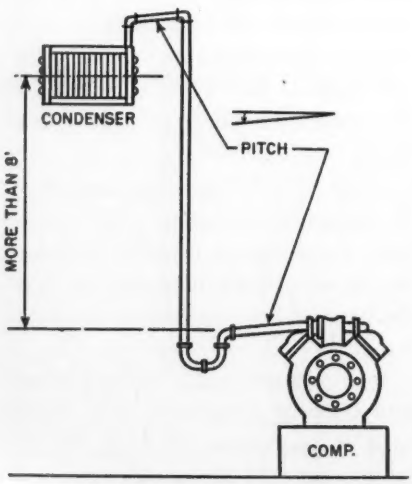
In Diag. 3, note that an oil trap is added to the base of a long vertical riser. The trap will accumulate what liquid may condense from the refrigerant in the riser during shut-down. Oil will "blow through" on starting.

Oil traps can serve a very worthwhile purpose in many refrigeration systems. They have two functions. They serve as a collector of oil and they provide for entrainment of the oil by vapor passing through the trap as soon as the compressor is started after a period of shut-down and during which the trap has acted as an accumulator. The oil is in the form of a mist while the refrigerant is a gas. Therefore, the only way for the oil to continue its path through the circuit and back to the compressor is to entrain it. This requires that the refrigerant vapor be traveling at a relatively high velocity, thereby keeping small oil particles moving along with it.

When the compressor stops, the vapor flow ceases. In horizontal lines the oil droplets form on the bottom of the pipe and flow in the direction of pitch. In vertical lines, when the vapor velocity decreases below 1,500 ft. per minute, the oil settles by gravity to the bottom of the pipe. Without an accumulating trap at the base of a long vertical riser, enough oil could collect to cause damage to the compressor valves.



DIAG.2 HOT GAS LINE



DIAG.3 HOT GAS LINE

A trap is not intended to serve as a reservoir for lubricating oil and, therefore, the horizontal portion should be kept as short as possible. Never enlarge a trap as it could then contain sufficiently large quantities of lubricant to deprive the moving parts of essential lubrication.

When a refrigeration system has capacity control there will be varying volume of refrigerant and varying velocity in the hot gas line. One method of overcoming problems that then would result is to use an oil separator at the base of the hot gas line as shown in Diag. 4.

The standard refrigerant type oil separator includes a float valve that opens to permit oil return after a small quantity settles in the separator. Such separators should be installed close to the compressor to assure return of oil to the suction chamber. Be sure that oil is not returned directly into the crank case as it will have some liquid refrigerant intermixed. The boiling of this liquid refrigerant can cause foaming of the crank case oil and this condition is dangerous.

A second advantage of using an oil separator is to deaden the pulsating effect of compressor discharge in much the same way that a muffler quiets engine exhaust noise.

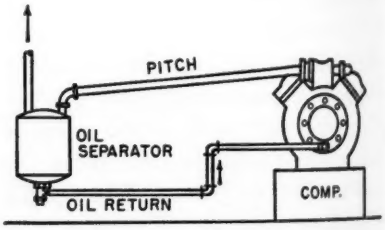
Keeping the oil moving with liquid refrigerant presents no serious problem since Freon-12 and oil have nearly the same density and they mix readily. However, liquid refrigerant lines will require special attention for a large vertical lift as this will create a pressure differential and without sub-cooling the liquid, the pressure differential could mean flash gas.

For suction piping, which again means refrigerant vapor rather than liquid, there are two important considerations. When the evaporator is above the compressor location, it should pitch down to the compressor location.

When the evaporators are below the compressor location, they should pitch down to a trap, then up through a riser to enter the main suction line from the top. Diag. 5 indicates proper procedure for suction line connection at the compressor to avoid having a slug of liquid (oil) drawn into the compressor immediately upon starting.

After completing the installation, and during the initial trial runs, there are a few adjustments which can be made. For example, the rate of refrigerant flow and the efficiency of the cooling coil can be varied slightly by adjusting the thermal expansion valve, allowing a greater or a smaller amount of evaporation within the cooling surface. Usually, a 10° superheat is desirable for the temperature of refrigerant leaving the evaporator.

When valve is adjusted for greater superheat there will be less cooling by the coil. With less superheat there will be more cooling. However, then there will be the definite possibility that the relatively cool suction line will occasionally condense moisture from surrounding air and this presents a maintenance problem. Also there is more possibility of having liquid refrigerant in the suction line and excessive quantities can damage the compressor.



DIAG.4 HOT GAS LINE

Motor overload on the compressor is usually corrected by reducing the condensing pressure, or in other words by faster heat removal from the condenser. For water-cooled equipment a greater rate of flow is about the only solution. For evaporative equipment or a tower, some extra re-circulation of water may be helpful, or more air movement may be the answer. For air-cooled condensers the answer is either more air, air at lower temperature, or extra condenser surface. The least cost-

ly adjustment is usually more air movement.

Air-cooled condenser fans are almost always of the propeller type, either belt-driven or direct-connected. Before considering changes to increase the air quantity remember that this type of fan loses capacity to handle air as the resistance of flow is increased. A slight increase in quantity can mean sufficient increase in resistance to reduce the fan capacity and perhaps overload the driving motor. This type of fan also can be expected to be noisy at high tip velocity and quiet at low tip velocity.

The fan that is used for circulating conditioned air is always of the centrifugal type and usually has forward curved blades. This means that the blower blades are curved in the direction of rotation. There are other types of centrifugal fans and all types have some different operating characteristics. This subject could be a detailed study all by itself, but everyone should recognize the following fundamental characteristics and relations which can be applied to all forward curve centrifugal blowers:

Air handling capacity at delivery point varies directly with rpm.

Static pressure for available delivery varies as the square of the fan speed.

Required power varies as the cube of the fan speed.

As an example, suppose that a particular fan is rated at 1000 cfm delivery against 1" of water static pressure at 600 rpm and then requires 0.3 bhp. To establish conditions when speed is changed to 500 rpm:

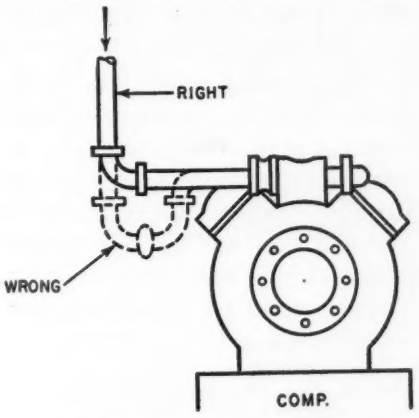
$$\text{Capacity } \frac{500}{600} \times 1000 = 835 \text{ cfm}$$

$$\text{Static } \left\{\frac{500}{600}\right\}^2 \times 1'' = .69'' \text{ water}$$

$$\text{Power } \left\{\frac{500}{600}\right\}^3 \times .3 = .18 \text{ bhp}$$

Additional adjustments could include changing the settings and the operating points for automatic controls and checking settings for both branch duct dampers and outlet dampers.

The owner of new airconditioning equipment usually is protected by manufacturers' warranties. It is general practice to provide a one-year warranty for the complete unit and as much as a five-year warranty for the hermetically-sealed motor-compressor unit. It is good practice but not common practice to review the wording and the intention of these warranties with prospective buyers. Purchasers



DIAG. 5 SUCTION CONNECTION

can be expected to assume that a warranty will mean complete replacement at no charge by the installer.

Proper approach to these questions gives the dealer his best opportunity to discuss a maintenance and service agreement. The installing dealer should be interested in pointing out the limitations of manufacturers' warranties and the very important need for preventive maintenance to limit the amount of service that will be required.

A "typical" inspection contract is hard to define as it may include varying degrees of preventive maintenance and responsibility. However it would be logical for the service engineer to cover at least most of the items mentioned in the table and regular inspections should be made on a pre-season, mid-season and end-of-season basis. All visits, including any emergency calls between regular inspections, may be contracted at the normal hourly rate.

A second type of contract is more comprehensive. It duplicates work as described above and includes an agreement to furnish and install at no extra cost to the owner, the replacement parts, refrigerant or other accessories necessary to maintain proper operation of the air conditioning system. A typical contract of this kind requires protection for both parties to cover:

Regular inspection and normal maintenance to clean, lubricate and adjust items mentioned in the table for a specified number of annual visits.

Provision for emergency service at customer's request.

Labor and materials for repairs or adjustments required at any time to provide satisfactory performance.

Possible limitations for protecting the liability of a contract of this nature would be:

That the owner agrees to pay additional cost for work that is required outside of the regular working hours.

Service performed without the authority of the maintenance contractor will void the agreement.

Specific reference to parts of the overall system that may require maintenance but are not included. Could be the duct work, dampers.

SERVICES PERFORMED

Maintenance inspection Contract

INSPECTION	SERVICE PERFORMED
	(when necessary)
High Side—Compressor	
1. Operating pressures	Purge or add refrigerant.
2. Crankcase oil	Add oil, drain and refill.
3. Vibration	Adjustment.
4. Refrigerant leak tests	Replace gaskets, tighten joints.
5. Electrical system	Lubricate and clean starter contacts.
6. Controls — operating and safety	Check operating positions, adjust.
High Side—Condenser	
1. Operating pressures	Adjust water valve, clean coil.
2. Blower, drive and motor	Clean, lubricate, check drive.
3. Circulating pump	Drain, clean, lubricate
4. Condenser surface	Leak test, clean, avoid rusting.
5. Housing	Clean, paint to avoid rust.
Low Side	
1. Filters	Clean or replace.
2. Drip pan	Check drainage, clean, avoid rust.
3. Cooling coil	Clean fins, leak test.
4. Blower	Check balance and rotation, clean, oil.
5. Motor and drive	Lubricate, clean, adjust or replace.
6. Housing	Check and stop vibration, corrosion.
7. Controls, dampers	Clean and set for seasonal usage.

Oilburner service Contracts from Pacific Coast Dealers

THE FOUR SERVICE CONTRACTS reproduced on this and the facing page are representative of the agreements being offered this year by oil-heating dealers in the Pacific Northwest region. Three of the contracts were obtained from Seattle, Wash. dealers; the other one came from Eugene, Oregon.

They are significant in that this is the first year that such contracts are being offered generally in this section of the country. Another reason for reproducing them is the thought that other dealers can use them as models for drawing up similar agreements in their own areas. Of course, not every provision of these, or any other service contracts, will apply to all localities. The general idea, though, holds true and it is only the references to purely local conditions or specific company provisions that need to be changed.

Here then is a brief rundown of the provisions of the accompanying contracts.

Rossoe Mfg. Co., Seattle, Wash.

An annual service contract that provides for a full year of "Insured Service," 1. Complete instrument test; 2. Labor service available on call at any time; 3. Preventive maintenance inspection service; 4. Automatic replacement of any and all currently available parts.

The contract itself lists the cleaning, inspection and adjustment steps of the preventive maintenance program, along with parts furnished. It limits service calls to normal working hours, 8:00 A.M. to 4:30 P.M. and charges regular rates for emergency work performed at other times.

Electro-Watt, Inc., Seattle, Wash.

This Preventive Maintenance Agreement "includes inspection, cleaning, repair and replacement of all operating, non-expendable, currently available parts of your oilburner, controls, blower and/or pump." Also, burner and controls get two complete checks and adjustments during every 12-month period; every other year Electro-Watt adds a corrosion inhibiting solution to the fueloil tank.

This agreement also lists the specific parts subject to "checking, cleaning, repairing or replacing" as required and further limits emergency service calls to normal working hours between 8:00 A.M. and 4:30 P.M. Emergency work performed during other hours is charged at regular service rates, less a 30% discount.

Griffin Fuel Co., Seattle, Wash.

This company's "Heating Comfort Program" is covered in an "Enrollment Form" and limits itself to the simple statement that the "program provides around the clock service and maintenance on your burner. We check, inspect, clean, adjust and replace, as necessary, all operating, currently available parts of your oilburner, controls, blower and pump. We vacuum the furnace, smokepipe and base of chimney, when needed."

Automatic Heat Co., Eugene, Oreg.

This, too, is a fairly simple agreement, covering oilburner service, which excludes parts and extra services. For a period of a year it covers summer clean-up, two service inspections and "all emergency service required during the heating season."

The agreements generally are subject to pre-acceptance inspections of equipment and credit checks; usually are automatically renewable.

ROSSOE
OIL DELIVERY
DIVISION OF ROSSOE MANUFACTURING CO.

ANNUAL SERVICE CERTIFICATE

In order to guarantee you—our oil customer—the maximum in economy, convenience, and comfort from your heating equipment, Rossoe hereby agrees to provide a complete full-year Insured Service. The general plan provides—

1. **Complete instrument test with balanced air adjustment and positive combustion setting for long-lasting efficiency.**
2. **Labor service available on call at any time during the certificate year by factory-trained personnel.**
3. **Preventive maintenance inspection service for uninterrupted year-round performance.**
4. **Automatic replacement of any and all currently available parts necessary to maintain this service.**

Continuous peak performance and extended life utility is insured by the completeness of the services included in this agreement. During the annual period our preventive maintenance program will cover the following services:

Clean Strainers	Check All Control Contacts	Check and Adjust Drives and Belts
Clean and Adjust Electrodes	Check and Adjust Draft Regulator	Clean Air Conditioning Blower
Clean Nozzle	Inspect Combustion Chamber	Check Air Filters
Clean Burner Blower	Inspect Oil Gauge	Check and Service Blower Motor
Check Draft Tube	Inspect Oil Lines and Connections	Inspect Smoke Pipe Connections
Check and Service Burner Motor	Inspect and Adjust Control Settings	Check Chimney Draft

Specifically covered for replacement are the following currently available parts or any components thereof—any part of the operating mechanism:

Thermostat	Blower Motor	Fan Bearings
Fan Control	Blast Tube	Fan Shaft
Limit Control	Burner Housing	Drive Pulleys
Primary Control	Electrodes	Drive Belts
Fuel Pump Unit	Firing Assembly	Oil Lines and Fittings Above Floor
Ignition Transformer	Atomizing Nozzle	Siphon Breaker
Burner Motor	Drive Couplings	Draft Adjustor
Air Stabilizer	Burner Blower	Control Wiring
Oil Gauge	Ignition Cables	Operating Toggle Switches

In consideration of payment of $.....per month, or $.....in advance, plus tax, Rossoe hereby agrees to perform the above Insured Service for a period of one year from date. Normal working hours under this agreement are from 8:00 A.M. to 4:30 P.M. each day, Monday through Friday inclusive, except for legal Holidays. Emergency work performed during other hours at the request of the customer shall be charged for at the Company's regular labor service rates.

This agreement is automatically renewable and will remain in effect unless cancelled by either party by giving thirty (30) days' written notice in advance. In the event of such cancellation prior to the end of any yearly period, customer shall be back charged for service performed and parts installed to date of cancellation at the Company's regular rates. Any amounts unpaid therefor shall be immediately due and payable. Where customer has made advance payment, and no back charges are due, he will be refunded on a pro-rata basis the amounts prepaid for the unexpired portion of the agreement.

Customer's Signature.....

Address.....

Unit and Model.....

Serial No.....

I desire to pay $.....per month ☐

I desire to pay $.....in advance ☐

Dated.....

ROSSOE MANUFACTURING COMPANY

By.....

MODERN heat with OIL heat

General Conditions on the Reverse Hereof are Part of this Certificate

INSURED SERVICE

ELECTRO-WATT

Preventive Maintenance Agreement

To assure our oil customers the ultimate in comfort, service, convenience and economy from their heating equipment, Electro-Watt agrees to provide a complete Annual Preventive Maintenance Service. This service includes inspection, cleaning, repair, and replacement of all operating, non-expendable, currently available parts of your oil burner, controls, blower, and/or pump on a regular planned Preventive Maintenance Program. Your burner and controls will receive two complete checks and adjustments in any 12-month period. Once every other year Electro-Watt will add a corrosion inhibiting solution to your oil tank.

1. *This service will result in more efficient burner operation; better utilization of your fuel, and lower fuel costs.*
2. *All work will be performed by experienced oil burner mechanics. Service will be available on call any time during the contract year.*
3. *Defective or worn parts will be repaired or replaced with new or reconditioned items at the discretion of Electro-Watt.*

This agreement specifically covers the checking, cleaning, repairing, or replacing of the following currently available parts:

Thermostat	Burner Housing	Blower Drive Pulleys
Blower Control	Electrodes	Blower Bearings
Limit Control	Electrode Holders	Blower Shaft
Primary Control	Firing Assembly	Blower Shaft Collars
Fuel Pump Unit	Atomizing Nozzle	Blower Belts
Ignition Transformer	Nozzle Screen	Siphon Breaker
Burner Motor	Nozzle Body	Draft Adjuster
Blower Motor	Drive Couplings	Control Wiring
Blast Tube	Burner Blower	Oil Filter
Diffuser Cone	Ignition Cables	Operating Toggle Switches
Stabilizer	Oil Lines and Fitting	Burner Mounts
Oil Feed Tube	Above Floor	Leveling Bracket
Oil Tank Fill Pipe Cap	Pump Motor	Asbestos Blast Tube Collar

In addition to the routine maintenance, Electro-Watt will provide emergency service during normal working hours at no additional charge. Before calling for service, it is agreed that you will make the following checks:

1. *Raise thermostat 10° above room temperature.*
2. *Check fuses; replace if in doubt.*
3. *Make certain that the burner switch is on.*
4. *Reset safety button on relay (once only to prevent flooding).*
5. *Check for sufficient fuel.*

Our serviceman on his first visit will show you how to do each of these and instruct you in the operation of your heating plant.

Electro-Watt may charge regular service rates for work performed where occasioned by failure to check the above listed items. Where oil is being supplied through Electro-Watt automatic refill service, no charge will be made for failures due to insufficient fuel.

Basic Charges: **$24.00 per year,** covering a standard-type conversion diesel oil burner and controls, or a forced warm-air heating system, or a forced hot-water system.

Extra Charges: Zone-controlled systems:
$1.00 per year for each thermostat.
$1.00 per year for each control motor.
$1.00 per year for each blower, or pump motor.
$2.50 per year for Modufiow Systems.
$2.00 per year for Thermodrive.
Price upon inspection of Blower Motors over ½ HP.
Air Filters of the throw-away type will be replaced at the discretion of the serviceman, and charged for at regular company rates. Permanent-type filters will be cleaned, if needed, by the serviceman when on the job for a charge of $1.00 per filter.

In consideration of payment of $.....**per year, payable cash $**.....**with agreement, and $**.....**quarterly, plus sales tax,** Electro-Watt agrees to perform the above Preventive Maintenance for a period of one year from date. Normal working hours for this agreement are from 8:00 A.M. to 4:30 P.M., Monday through Friday, inclusive, except for legal holidays. Emergency work performed during other hours at the request of the customer will be charged for at the company's regular service rates for such service, less a discount of 30%.

Services under this agreement may be suspended or terminated where customer's credit has become unsatisfactory to Electro-Watt. Services also may be suspended or terminated where customer procures service from others, or has provided his own service.

Electro-Watt, before accepting this agreement, reserves the right to inspect the equipment to determine if it is economically repairable and capable of proper operation. Electro-Watt will not be responsible for equipment subject to misuse, negligence, improper operation not in accordance with instructions of the manufacturer, or subject to improper electrical characteristics, running out of oil (if not on Electro-Watt automatic refill service), use of dirty or unsuitable oils.

This agreement is cancellable by either party by giving 30 days written notice after the first twelve months. Unless cancelled the agreement is self-renewing. In the event of cancellation prior to the end of any yearly period, the customer shall be charged for service performed, and for parts installed during that contract year, at the company's regular rates. Any amounts unpaid shall be immediately due and payable. Where prepayments exceed the charges due, the customer will be refunded that amount applicable to the unexpired months of the agreement.

Service by Electro-Watt will be performed diligently and expeditiously under all normal conditions. Electro-Watt will not be liable for any consequential damages or injury, or for any loss or damage caused directly or indirectly by unavoidable delays, strikes, fire, flood, freezing, accidents, earthquake, inability to obtain material, war, action of any Governmental body, other abnormal causes, any causes beyond the control of the company, or for any work not done by Electro-Watt or its authorized agents.

Customer's Signature.....

Burner Address..... *Billing Address*.....

Telephone Number..... *Date*.....

MODERN heat with OIL heat

ELECTRO-WATT, INC.

Accepted By.....

Date.....

STANDARD HEATING OILS

Electro-Watt's *Preventive Maintenance Agreement covers parts and includes two burner and control checks.*

Griffin Fuel *enrolls its customers in its "Heating Comfort Program".*

GRIFFIN'S HEATING COMFORT PROGRAM

ENROLLMENT FORM

For $24.00 per year, this program provides around the clock service and maintenance on your burner. We check, inspect, clean, adjust, and replace, as necessary, all operating, currently available parts of your oil burner, controls, blower and pump. We vacuum the furnace, smoke pipe, and base of chimney when needed.

Before calling for service, you will check the following:

1. Thermostat—is setting above room temperature?
2. Oil tank—make sure that there is oil in your tank.
3. Emergency switch—be sure the emergency switch has not been turned off accidentally.
4. House current—if there is no power, the burner can't run.
5. Fuse—if the oil burner fuse, or the main fuse has blown, replace the fuse with one of the same rating.
6. Reset button—if everything seems o.k. press the reset button on the Master Control. If the burner does not start and continue to run, do not press again, but call us immediately.

For a service fee of $_____ payable in advance or on a monthly basis, Griffin Fuel hereby agrees to perform the above service for a period of one year. This agreement is automatically renewable and will remain in effect until cancelled by either party giving 30 days written notice in advance. In the event of such cancellation prior to the end of any year period, customer shall be charged for service performed and parts installed to date of cancellation at the Company's regular rates to the extent that such charges exceed the pro-rated portion of the yearly fee. Where customer has made advance payment, he will be refunded on a pro-rated basis, the amounts prepaid for the unexpired portion of the agreement less the service charges.

Enroll here_____ I desire to pay_____ per month

Address_____ I desire to pay_____ in advance

Type of furnace_____ Date_____

GRIFFIN FUEL COMPANY OF SEATTLE

Approved by_____

STANDARD HEATING OILS · GENERAL ELECTRIC, McPHERSON, WINKLER AND KREISKY HEATING EQUIPMENT

Automatic HEAT CO.

WARM AIR · RADIANT WATER AND STEAM HEATING SYSTEMS

PHONE 4-1427

3675 FRANKLIN BLVD. · EUGENE, OREGON

STANDARD

OIL BURNER SERVICE AGREEMENT

The Automatic Heat Co., for and in consideration of the amount stated below, agrees to furnish the oil burner service hereafter described to:

Name..... Address.....

From JUNE 1 To MAY 31 Amount.....

GENERAL CONDITIONS

● SUMMER CLEAN UP

Wire brush and vacuum clean furnace and smoke pipe, and base of chimney if accessible. Clean and lubricate all motors, blowers, and pumps. Clean and test all controls. Test and adjust the burner to maximum efficiency.

● AUTOMATIC CHECKS

Make at least two service inspections on the oil burner during the heating season. These service checks will include lubrication of all working parts of the furnace, testing of controls, and adjusting the flame.

● EMERGENCY SERVICE

All emergency service required during the heating season is included in the service agreement. The Automatic Heat Co. will have servicemen on duty for emergency service calls on Sundays, holidays, and until 11:00 p.m. every evening through the heating season. For emergency service phone 4-5211.

☆ ☆ ☆ ☆

• This agreement does not include the furnishing of burner, furnace or boiler parts, the cleaning or repair of the chimneys, nor the cleaning or repair or the heat ducts, repair of hot water lines, oil lines, or oil tanks. Neither does the contract cover the cost of labor or material necessary to repair damages to equipment caused by water, fire, or abuse.

• The Automatic Heat Co. is to deliver all requirements of the proper grade fuel oil at the existing price at the time of delivery. Unless requested otherwise, automatic delivery will be made and printed meter delivery tickets left as evidence of delivery.

• The Automatic Heat Co. will not be held responsible for damage or loss resulting from conditions beyond its control, or consequential damages.

Automatic Heat Co.

Automatic Heat *offers a contract which excludes parts and extra services.*

Fourth Canadian Heating Show attracts record Attendance

AT THE 20TH ANNUAL MEETING of the Oil Heating Association of Canada, President E. Harvey McKinney, of Engineering Industries Limited, Toronto, told members of the re-organization of OHA with its own permanent management and offices. The action is part of a major expansion in the Association's services and program for the coming year which is geared to the continuing growth of the oilheating industry across Canada.

Arnold J. Rowe-Sleeman has been named managing director of the Association and will take over on May 1. He has been identified with the Association's management firm over the past five years and has managed and produced OHA's National Heating & Air Conditioning Show since its inception.

A new record attendance of architects, builders, heating equipment dealers, airconditioning engineers, contractors and other trade groups was recorded at this year's Show. Some 3,000 equipment dealers attended, representing every province in Canada and ten of the American states. Management has announced dates for next year's Show—the Fifth Annual Exposition —to be held March 11, 12 and 13 at the Automotive Building in Toronto.

An interesting fact emerging from this year's Show was the very broad geographical distribution of registered guests. U. S. attendance has increased annually with the growth in number of U. S. exhibitors, who this year occupied approximately 30% of the total space in the Show. Foreign trade commissions from Northern Europe and several countries in Southeast Asia also were present this year and expressed considerable interest in the possibilities of the Canadian market for their home manufactured lines.

One aspect of OHA's new program is the establishment of a separate headquarters office and staff for the Toronto Chapter, OHA—an organization of fuel and equipment retailers in the metropolitan Toronto market who are presently conducting a consumer advertising program. Neil H. Regan, formerly with a Canadian petroleum corporation, has been named manager of Toronto Chapter and is developing an integrated program at the local level.

McKinney

Rowe-Sleeman

The Oil Heating Association's annual meeting, held during the Show on March 20, resulted in the re-election of E. Harvey McKinney as its president. W. C. Sergent is vice-president and C. K. Elder, secretary-treasurer.

C. W. Cooke, who is an OHA director, delivered the nominating committee report, which resulted in the following being elected to the board for the indicated divisions:

Oilburner manufacturers division: H. J. Dunn, A. W. Hale, L. C. West, R. D. Whiteman.

Accessory manufacturers division: J. E. Aldom, W. H. Evans, D. W. Carmichael, E. S. Gallagher.

Furnace and boiler manufacturers division: R. C. Robbins.

Equipment distributors division: G. W. Bouskill.

Fueloil distributors division: F. W. Birch, E. Cohen, D. R. McEwen.

In McKinney's report to the annual meeting he outlined details of a long term policy for expansion of Association activities. A principal effort is to be aimed at the formation of new dealer organizations, with OHA providing direction and organization helps. These would include establishment of installation and service schools for both apprentice and advanced training.

Other projects outlined by McKinney are intended to enlarge the scope of the services available to the group's oilheating dealer members and to provide live communication within OHA.

McKinney characterized competition with gas as a fight which spotlights a "pressing obligation to provide the best possible service to the oilheating user."

After opening ceremonies at 1:30 P.M. on March 19, the first of several educational sessions took place, sponsored by the National Warm Air Heating & Air Conditioning Association. The Oil Heating Association played host to the warm air group during the three days of the Show.

A panel discussion, "Are You Really in Business?" opened the NWA'S forum program, moderated by Lyle Whealy, president of the group. He introduced speakers who discussed some of the fundamentals of operating a profitable business, covering such topics as sales budgets, dealer training, pricing and creative selling. Some of the highlights follow.

C. E. Israel, James Stewart Mfg. Co., Ltd., exploring sales budgets stressed the importance of considering all overhead items, including the obvious items such as salaries, labor, rent, taxes, etc., but encompassing also any cost items that are not chargeable to specific departments.

He strongly recommended budgeting for reasonable profit and advised reducing annual sales to monthly figures to permit a closer and continuing check of how well the dealer is operating within his sales budget.

The second speaker, G. C. Ward, The Anthes-Imperial Co., Ltd., examined the "Cost of cutting Corners from the consumers' Standpoint" and concluded that everyone eventually suffers where the "leastest for the leastest" motivates the dealer and the builder to conclude a sale. The contractor makes no money, he said; the homeowner buys a diamond ring and gets glass instead; the builder's reputation is impugned.

The lowest cost for an installation simply cannot be a criterion for project sales, Ward declared. Most homeowners just don't know what quality heating is, so that they are not in a position to judge the heating system until they realize later on that it doesn't provide the comfort they want.

In essence, Ward stated, selling effective heating calls for consideration of the job to be done and avoidance of preoccupation with low price.

Dealer training, the third fundamental considered, was covered by R. D. Whiteman, Timken Silent Automatic Div. He pointed out that the topic embraced training of equipment salesmen, as well as service and installation personnel. The first step, Whiteman continued, naturally is the selection of new men and here it is vitally important to be selective to the point where only those men will be picked who are capable of absorbing training. In other words, the best time to screen these men is before the dealer has invested time and money in providing training. References, work history and aptitude tests, for example, he said, are invaluable in selecting the proper man.

Whiteman also discussed the advantages to the dealer of making use of association and manufacturer schools in personnel training.

H. T. Williams, Gurney Dominion Furnaces, followed by outlining the effects of "Creative Selling at the dealer Level," pointing out that he believed this to be the only way the dealer can secure his share of new home and modernization work. He said, "The aver-

(*Please turn to page* 156)

OILHEATING MARKET REPORTS*

Providence, R. I.

THE METROPOLITAN Providence market, as defined by the representative oilheating group active in the locality differs from any established statistical area, including both the Providence Standard Metropolitan and the Urbanized Areas of the Federal Census. Further, it includes only parts of four Rhode Island counties, all of a fifth (Bristol Co.) and parts of communities in Massachusetts (Seekonk, Rehoboth, North and South Attleboros, Attleboro and Plainville).

Through various projections the following estimates have been made of the numbers of installations using each of the three principally-competitive fuels . . . for 1950, and for the beginning of 1955. These represent central heating only, in residences of not more than two-dwelling units:

	1950	*1955*
Coal	22,039	9,477
Gas	4,468	7,479
Oil	40,268	68,456
Other	2,850	2,850
Total	69,625	88,262

The oilmen, questioned as to the percentage of the total number of domestic-type No. 2 burners in use in the small apartment-commercial establishments, estimated 9.67% of all burners were in this category. This would account for an additional 7,325 burners in the small apartment-commercial category, resulting in a total of 75,781 oilburners in both types of central heating usage burning No. 2 fueloil.

Competitive Fuels

Anthracite coal, of 13,200 Btu content per pound, for handfiring, sells in this market for around $26.95 per ton. This is the equivalent of 10.2¢ per therm (100,000 Btu). In the sizes for stoker usage, at about $18.40 per ton, the cost per therm is about 7¢.

The Providence Gas Company's house-heating rates are bracketed in the usual "step-down" pattern. All gas over 5,500 cu. ft. per month is supplied at the lowest rate of 13½¢ per hundred cu. ft. under this service classification. Taking into account, and calculating the cost of gas heat for a typical home requiring 1,500 gallons of No. 2 fueloil for heating, we find that the total annual cost of gas heat would be $286.61, compared to a total annual cost of $210.00 for oilheat. Thus gas, in an average case such as this, would be 36.4% more expensive than oilheat.

Natural gas furnished by the Blackstone Valley Gas and Electric Co. costs, at its lowest-bracketed price (for over 2,600 cu. ft.) 15¢ per hundred cu. ft. At this price gas costs the equivalent of 15¢ per therm. It is, therefore, 50% higher in cost than No. 2 fueloil.

No. 2 fueloil, at the 1954-55 Winter price of 14¢ per gallon, costs the equivalent of 10¢ per therm.

Fueloil Distribution

Our preliminary estimates of the total retail gallonage of No. 2 fueloil in this market were based upon 68,456 residential oilburners in use, consuming an average annually of 1,550 gals. To this could be added the 7,325 oilburners in use in the small commercial-small apartment classification, if the oilmen's estimate (9.67% of total number of distillate oilburners) were taken. This type of usage would consume an average of about 3,648 gallons annually.

Based upon these assumptions, the total indicated retail market gallonage would be about 132.8 million gallons.

Of the total quantity of fueloil brought into the market the major companies bring in 88%, the independent terminal companies 12%.

The retail gallonage is divided between the major suppliers, who sell 17% of the total volume distributed on a direct basis, independent terminal operators or large wholesale suppliers, who handle another 9%, and the independent marketers, who sell the largest retail share—three-quarters (74%) of all tank wagon gallonage.

Most of the independent distributors in this Providence area (79%) do not maintain bulk storage facilities of their own . . . depend upon other companies for this service. About 70% of the total retail market gallonage handled by independent marketers is purchased "under the fill."

Refinement in the delivery of fueloil is on a substantially high plane in this market; 78% of all No. 2 fueloil customers are served under automatic, "keep-filled" delivery systems; approximately 73% of all users' storage tanks are equipped with VENTALARM fill signals. The use of budget plan payments for fueloil is in practice among 15% of the heating oil customers—an average degree of acceptance in the typical eastern market.

Six percent of the independent fueloil marketers are concerned also with the sale of gasoline. Thirteen percent of all independent fueloil marketers are engaged in the coal business. More than three-quarters, however, of all independent fueloil marketers (77%) sell oilburners and related oilheating equipment . . . an index of a healthy degree of integration.

Market Concentration

A total of about 424 trucks are engaged in the delivery of No. 2 fueloil in this market. Volume-wise, the distribution of heating oil is quite broadly dispersed among the more than 90% of all of the independent marketers who are in a one-to-five-truck size classification. These small to medium-size firms handle, in the aggregate, more than 70% of the total retail market gallonage sold by independent companies. Only about 8% of the independent marketers operate 6 or more trucks and these larger companies, combined, account for only a little over 28% of the total market volume.

The tabulation breaks down the delivery-operation of the estimated 160 companies active in the area on a trucks-operated-per-company basis:

Trucks per Company	*Number of Companies*	*Percent of All Companies*	*Total Trucks*	*Percent of All Trucks*
10 or more	4	2.5%	55	13.0%
6 to 9	9	5.6	65	15.3
3 to 5	42	26.3	151	35.6
1 or 2	105	65.6	153	36.1
Totals	160	100.0%	424	100.0%

In this market the fueloil companies are the dominant factor in the sale and installation of oilheating equipment, selling 76% of all such installations. The plumbing and heating dealers and the specialized burner service companies, combined, are a minor factor, together selling less than a quarter of the total installations or, respectively, only 15% and 9% shares each.

Oilburner Service

In the Providence-area fueloil companies play a major role. Here 80% of all oilburner service work is handled by companies who market fueloil; only 8% by the plumbing and heating dealers and 12% by the specialized burner service companies.

In this aspect, furthermore, most oilmen feel that the fueloil companies are increasing their part in the total service workload picture.

A little over two-fifths (41%) of the oilheating customers arrange for the maintenance of their oilburners under some form of regular service contract. Another 35%, though not covered by a service contract, order cleaning or tune-up jobs at some time during the year. Adding the two groups, we have a total of 76% of all oilburners in the territory receiving attention—on a minimum basis at least—once a year.

A service contract, including parts replacement, runs around $20.00; those contracts which do not include parts average about $15.00 in cost. For an annual clean-up job, the median price charged is $8.00. For straight service calls the fueloil companies' typical charge is lower ($3.08) than that of the companies who do not sell oil ($3.80).

Advertising Promotion

Individual advertising of oilheat by major companies has been moderate to light, in the opinion of the local fueloil men interviewed. About two-thirds of the weight in any such advertising running over company signatures goes toward promotion of particular company brands of heating oil; only a third of the emphasis is allotted to the general theme of better living, more dependable comfort, with oilheat.

Among the independent fueloil marketers, about a third of the companies engage in fueloil and oilheat promotion through the usual advertising media.

Prior to the 1953-54 season there is no history of any cooperative group promotion for oilheat of any consequence. At that time, however, a very respectable budget of $13,000 was raised. Again, for 1954-55, a sizable program was developed.

The efforts of the Oil Heat Committee of Rhode Island in securing financial participation in the program from the major suppliers have met with considerable success here.

Twenty to thirty independent marketing companies are supporting the current campaign. These firms represent about 80% of the market's total retail gallonage, and the amounts of their individual contributions are set at $1,000, $500 or $200 levels, depending upon the Finance Committee's knowledge of the size of each independent marketer.

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OILHEATING MARKET REPORTS*

Toledo, Ohio

LUCAS COUNTY, Ohio, including the city of Toledo, comprises the oilheating market considered in this analysis:

The population of the county in 1950 was 395,551; by 1955 this had increased to 425,000, a growth of 29,449, or 7.5%. This is nearly 5% of that of the state.

In 1950, of 121,583 total dwelling units, including "rural-farm dwelling units," 100,716, or 82.8%, were one- or two-family units. By 1955, the number of total dwelling units had increased to 134,269, of which it is estimated 111,228 were of the one-two-family type . . . a 10.4% increase.

The earliest available count of oilfired central heating installations, from the domestic fueloil rations issued in 1945, lists a total of 4,425 such permits.

Basing the following estimates in part upon the composite of the opinions of the oilmen interviewed, the following breakdown of central heating installations in single and double residences, by fuel usage, is indicated for 1950 and 1955:

1950		*1955*
32,016	Coal	15,831
21,903	Gas	34,540
11,258	Oil	21,588
1,251	Other	1,379
66,428	Total	73,338

Probably the greatest obstacle holding gas back to only a 58% increase since 1950 has been the fact that gas househeating, even in 1950, had reached a fair point of saturation in the city of Toledo.

Most of the domestic oilburner installations made during the period have been outside of the gas territory.

There has been some minor incidence of electric heating in this area, and some heating installed using LPG as a fuel . . . for that reason "other" fuels are considered to have shown a conservative increase in the five years.

In addition to the 21,588 oilburners in use in residences, there are an additional number in operation utilizing No. 2 fuel in small apartments, small commercial establishments, stores, service stations, etc. We estimate a total of 4,579 such installations which, added to the 21,588 residential oilburners in use, gives a final figure of 26,167 distillate oilburners in central heating operation as of January 1, 1955.

Competitive Fuels

Bituminous coal, of the type sold for househeating, at the time of this study, sold for $18-$19.75 per ton in the sizes for hand-firing. Allowing a top Btu content of 15,000 Btu per lb. to this fuel, and taking $19 per ton as a median price, the cost-equivalent, per therm, (100,000 Btu) would be 6-1/3¢. In the stoker sizes, with the premium variety of 14,400 Btu content per lb. selling at $16.75 per ton, the price per therm would be 5.8¢.

The utility company furnishing gas for househeating in this market is the Ohio Fuel Gas Co., which supplies natural gas of 1,025 Btu content per cu. ft. for this purpose. This company provides gas service only—electricity is sold by the Toledo Edison Company.

The rates for gas of 1,025 Btu per cu. ft., supplied by the Ohio Fuel Gas Co., are very simple—$1.05 for the first 1,000 cu. ft. and 64¢ per 1,000 cu. ft. for all additional. Currently, a "purchased gas adjustment" adds ½¢ per Mcf to the cost. Therefore, all gas used for househeating would be used at the lowest rate, of 64.5¢ per Mcf (including adjustment charge). This results in an equivalent cost per therm for this fuel (100,000 Btu) of about 6.3¢.

No. 2 fueloil in this market, at a Winter price of 14.3¢ per gallon, costs the equivalent of 10.2¢ per therm.

Fueloil Distribution

In Lucas County, the indicated total market gallonage of No. 2 fueloil is 42,804,210 gallons (1.02 million barrels). This includes estimated volume going to both residential and small commercial-type accounts, but does not include No. 1 furnace oil nor No. 2 fueloil for processing usage.

Practically the entire supply of No. 2 fueloil is brought into the market by the major oil companies . . . there may be a negligible quantity purchased from independent refiners. The major companies also, in this area, take over the bulk of retail distribution, selling 79% of the tank wagon gallonage, while the independent fueloil marketers handle the balance of 21% of the direct-to-consumer sales.

Nearly a third (32%) of the independent companies do not maintain bulk storage facilities of their own, loading product at the racks of other companies. Some 36% of the total retail market gallonage handled by independent distributors is purchased in this manner, "under the fill."

Progressive distribution methods are quite well-established here, with about 68% of all oilheating customers serviced through automatic fueloil deliveries.

The employment of VENTALARM or other audible-type fill signals is also quite widespread in this area. About 76% of all customers' tanks are so equipped.

A high degree of acceptance of budget plan payment methods is indicated by the estimates made by the local oilmen interviewed on this point. The average of their opinions gauges this acceptance at 24% of all oilheating customers.

The consensus is that 92% of independent fueloil marketers also sell gasoline. The oilmen further believe that about 10% of independent fueloil distributors are also in the coal business.

Market Concentration

A count of all known, established independent fueloil distributors operating in this market lists only 17 such companies. Of these,

9 operate 1 or 2 fueloils delivery trucks
5 operate 3 to 5 fueloil delivery trucks
2 operate 6 to 9 fueloil delivery trucks
1 operates more than 10 trucks

Thus, of the minor share of the retail gallonage handled in this market by the independent companies, the three largest distribute almost a half of the volume. And while one-half, or 9, of the companies are in a one- or two-truck size classification, they only do about a quarter of the direct volume handled by independent marketers—which in the aggregate is in itself less than a quarter of all No. 2 fueloil sold on a direct-to-consumer basis.

Oilheating equipment Sales

The plumbing and heating companies (who sell no fueloil) in the opinion of the oilmen interviewed, are responsible for 86% of all oilheating installations made in the market. The fueloil companies, who sold only a weak 4% of all oilburners, were outdistanced by even the specialized oilburner service firms, who sold another 10% of the market's oilheating equipment.

Oilburner Service

Presently, fueloil companies handle about 30% of the total service work load in the area. The heating companies perform 47% of all service rendered, and the straight burner service companies about 23%.

About 34% of the oilheated homes in this area are on service contract, though the type of contract that includes replacement of parts is not generally offered in this market. Another 45% of all oilheating equipment receives a check-up and tuning at least once a year. Nearly four out of five oilburners, then, are at least looked over annually and kept in reasonably good operating condition.

The usual price for a service contract (not including parts replacement) is $15. The typical price for an annual clean-up job runs around $10. Service work not covered by a service contract is priced by the average fueloil company at a minimum charge just under $5; when handled by the non-fueloil company at just over $5.

Advertising Promotion

The majority opinion of the oilmen interviewed indicates that advertising promotion of oilheat by major oil suppliers over their own signature has not been extensive. In what limited advertising has been run by individual companies an estimated 62% of the emphasis has been upon the particular brand of fueloil . . . only 38% upon the general reasons why a homeowner should specify oilheat.

The independent marketers have gone a bit farther, individually, to promote oilheating. More than a third of these companies (35%) have done some promotion on their own, and the average expenditure by these firms, on an existing fueloil account basis, is measured at about 95¢ per customer. In percentage of gross sales income this is calculated at about .7% of revenue.

Some of the dealers who worked on this survey felt that a stronger local industry association could be rewarding to its members. Interchange of useful, accurate credit information was mentioned as only one field of potential benefit through group activity.

At the meeting several fueloil marketers promised to lend support to efforts to increase the strength of the local organization. A chapter of OHI, the Oil-Heat Institute of Western Ohio, as the local industry organization provides a foundation for a stronger, more aggressive industry group.

*Copyright 1955, Oilheating Market Reports, 270 Park Ave., New York, N. Y.

Volt-Amp Test for Servicemen

Part 2—Test any Motor easily for Shorts or Grounds; check Loads on compressor Motors

Part one of this article on testing volts and amps, by J. W. Schulz, appeared in the April 1956 issue of FUELOIL & OIL HEAT. *Servicemen anxious to learn about such testing, which is extremely important for ending ignition-delay and ignition-failure trouble, should read part one before delving into part two which follows. Only one electrical testing instrument is needed to make the many tests described in this two-part article.*

IGNITION DELAY on an 8.0 gph job gave headaches for two years to the servicemen employed by a certain large fueloil supplier. Though the servicemen said they had "tried everything," the trouble continued. During the two years, the burner puffed (as the result of delayed ignition) as often as three times in one day. About one year after the trouble started, the servicemen thought they had licked the trouble. The burner fooled them by running dependably for a four-month period.

As though to put an end to all that nonsense, the burner then asserted itself in the form of a big puff that caused the owner to spend $420 patching up broken boiler parts and damaged basement doors and windows. Within two more weeks came four more puffs. These were mild to-be-sure. But only through sheer luck. The burner was proving it was in condition to produce puff damage far greater than it had at any time in the past.

The first part of this article on volt-amp tests, gave full details of the volt-amp tests that finally brought out the reasons for the erratic operation of this 8.0 gph burner.

On this installation, the trouble seemingly could be diagnosed properly and ended only with the help of an electrical testing instrument. The way things turned out, loose current-carrying parts in a steam-pressure control were responsible for the delayed ignition and expensive puffs.

At times these parts spluttered and overheated when the burner was starting. When they did, they dropped the input voltage to the burner's stack control with the result that the ignition-system spark was too weak for prompt, dependable ignition. The worst puffs resulted from ignition delay of almost 90 seconds; the stack control provided a 90-second try-for-ignition period.

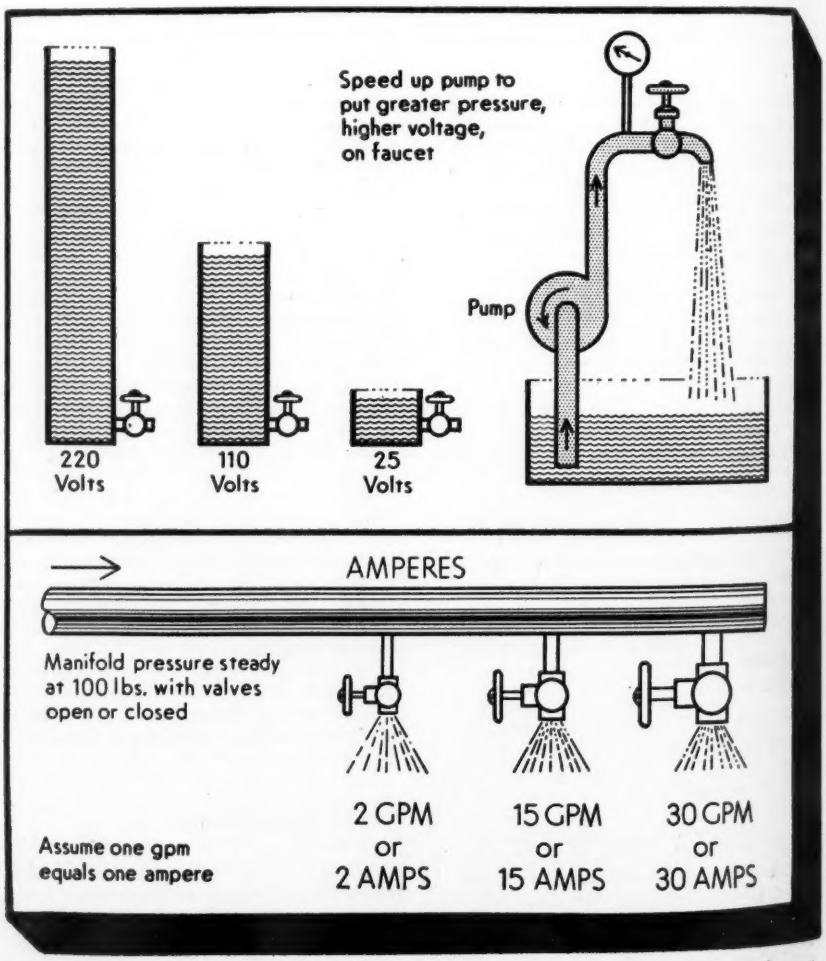
The first part of this article also gave complete instructions on using a snap-on ammeter on any wire carrying a load, and on any plug-in electrical appliance. It covered voltage and amperage testing of domestic oilburner motor and ignition circuits.

Just as you are not qualified to speak of an oilburner's operating efficiency before you have used combustion-testing instruments to check the oilburner, you are not qualified to discuss an oilburner's electrical trouble before you have made voltage and amperage tests on the job.

Servicing a burner which has been giving trouble, without volt-amp readings you don't even know whether or not the misbehavior of the burner is related to electrical shortcomings.

In the realm of combustion, you use instruments to tell you if an installation has shortcomings. You use a CO_2 analyzer, a smoke-checking instrument, a draft gage, and a stack thermometer. If the installation has shortcomings, the instruments bring out the nature and value of these, and at the same time suggest suitable remedies.

In the realm of electricity, similarly


Speed up pump to put greater pressure, higher voltage, on faucet
Pump
220 Volts
110 Volts
25 Volts
AMPERES
Manifold pressure steady at 100 lbs. with valves open or closed
Assume one gpm equals one ampere
2 GPM or 2 AMPS
15 GPM or 15 AMPS
30 GPM or 30 AMPS

Illustrations *taken from "Fundamentals of oilburner Controls," showing, in the top drawing, voltage as corresponding to pressure in a hydraulic system. Below it amperes are likened to units used to indicate the rate-of-flow of electric current in the same way that gallons-per-minute indicate the rate-of-flow of water.*

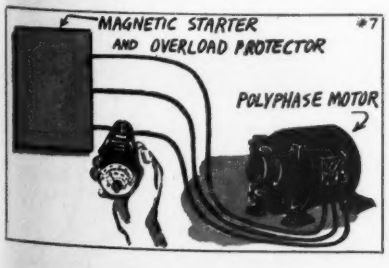
the use of suitable instruments reveals whether or not an installation has shortcomings—if it has, the instruments evaluate these numerically and suggest suitable remedies.

This article covers details of checking volts and amps—of oilburner and air-conditioner motors, for example—but does not cover in detail the meaning of voltage and amperage. If you are uncertain and want to know precisely the meanings of voltage and amperage, you can learn about them by reading the first few articles of the reprint book, "Fundamentals of Oilburner Controls," which is available from FUELOIL & OIL HEAT for $1. This book covers many other details of electricity with which a serviceman should be familiar.

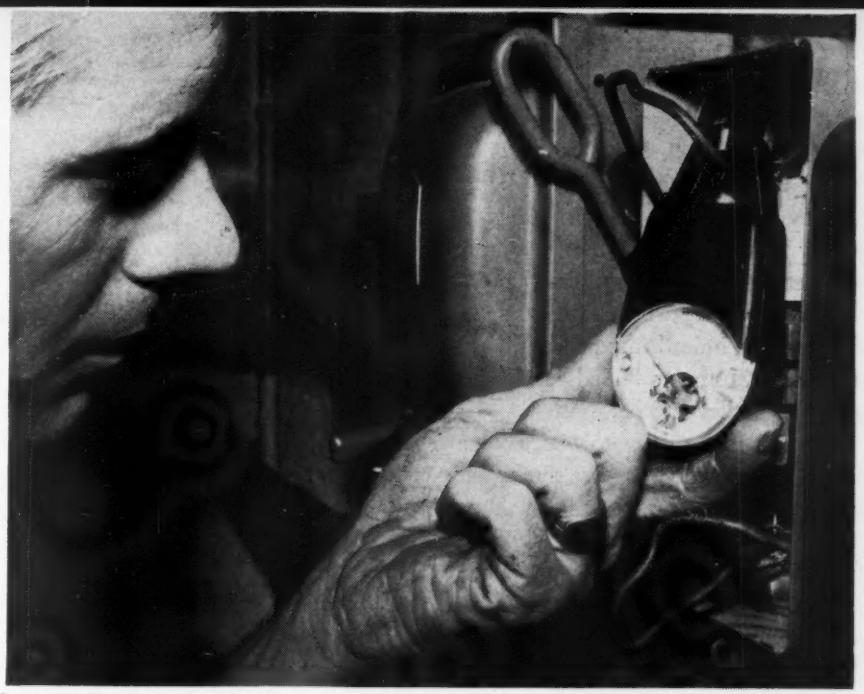
It is from this book that the two accompanying illustrations are reproduced. They illustrate voltage as corresponding to pressure in a hydraulic system and amperes as units which indicate the rate-of-flow of electric current, just as the unit gallon-per-minute indicates the rate-of-flow of water.

Electrical checking of both polyphase and single-phase motors is covered next in this article. As a serviceman, you are competent only if you can decide whether or not a motor is free of defects and thus is suitable for use on one of your installations. You cannot decide that without making electrical tests on the motor.

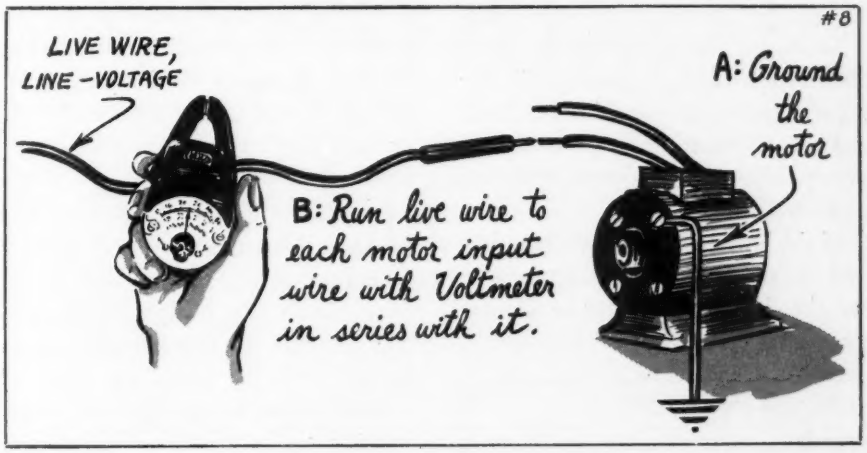
Diag. 7 deals with ampere-checking of often-encountered three-wire, polyphase motor and their starters. Referring to motor nameplate numbers and to your amp readings, you can easily reach decisions about motor defects, underloading, overloading, and degree of protection provided by the over-current or overload devices in the starter.



Diag. 7. *Servicing equipment powered by polyphase motors, such as airconditioners or commercial-industrial oilburners, you are not even passably thorough if you do not read the amps of the motors, as shown here, to check on motor loads and performance, and on overload protection provided by magnetic motor starters.*



Service engineer *reads the amperage flow of current through one of the three wires to the motor of a horizontal rotary cup oilburner. To read amperage of any wire, simply encircle it with jaws of the tester.*



Diag. 8. *Here the special lead wires are plugged into the back of the instrument because a voltage reading, not an amperage reading, is being taken. This checks for a ground in a motor, a flow of current from the wires of the motor winding to the frame of the motor.*

The fact is that it is impossible for you to pass on the condition of a polyphase motor without reading the amps of each wire providing it with current. Without amp readings, you do not know if the motor is protected properly against overloads.

You test a motor for a ground, a flow of current from its windings to its frame, simply as Diag. 8 shows. The motor frame is grounded by a wire that connects it to, for example, a water pipe or a well-grounded electrical conduit. Live line-voltage current goes to one terminal of the motor windings through the voltmeter. Switch the voltmeter-to-motor-winding wire to different motor terminals.

Tested this way, a dry, healthy motor will not cause the voltmeter to give an appreciable reading. The voltmeter needle may flicker, or in case of a large motor may report a few volts because of slight leakage through the insulation plus capacitance effect between the windings and the metal motor parts in contact with windings and connected electrically to the frame.

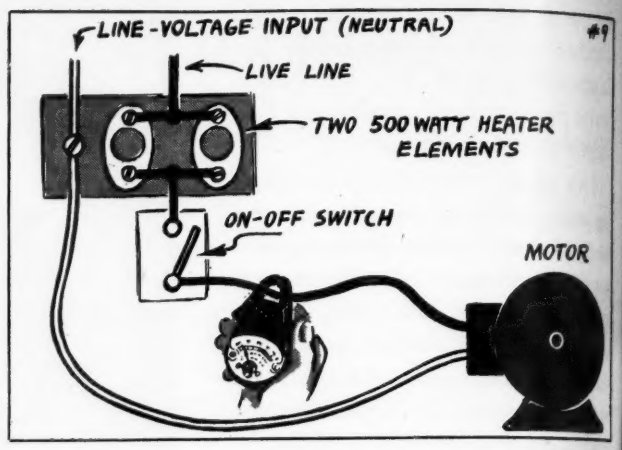
If a seriously large amount of current flows through the winding insulation to the motor frame, comprising a

short, the voltmeter needle will register full line voltage during the test shown in Diag. 8. You can evaluate the seriousness of the ground by wiring a heavy resistance, say a 500-watt heater element, in parallel with the voltmeter—if when you do this the voltmeter still reports full line-voltage, the motor is indeed in poor condition! Its windings are grounded just about as much as they can be!

Diag. 9 shows how to test a fractional-horsepower two-wire motor for excessive current input, or for a short-circuit, without chances of blowing a fuse. Install an on-off snap-switch in the live leg to the motor as shown. Also as shown, instead of a fuse use two 500-watt cone-type heater elements connected together in parallel. As these become hot, they should be screwed into porcelain or similar heat-resistant sockets.

With the line switch open, connect the motor as Diag. 9 shows. If it contains a short that would blow fuses, the two 500-watt heater elements will glow at their full brightness after you close the switch.

If the heating elements do not glow and the motor seems to run properly, use the clamp-on ammeter to measure its current input. If you can simulate full load on the motor shaft in some fashion, perhaps by putting a large enough centrifugal blower wheel on its shaft, you can find out if under full load the motor draws the proper amount of current, which in many cases is marked on the motor's nameplate.



Diag. 9. *Test a two-wire motor this way to determine if it draws excessive current or its windings are short-circuited. Thanks to the use of two 500-watt heater elements in place of a fuse, you won't blow a fuse if the motor is grossly defective.*

Diag. 10 shows testing a condenser or capacitor. Here as in Diag. 9, a dead short results in lighting up of the heating elements but does not blow a fuse.

If the condenser or capacitor proves to be free of a short-circuit, apply the clamp-on ammeter to its circuit as the drawing shows. If the instrument reports no flow of current, the condenser or capacitor is ailing because of an internal open circuit.

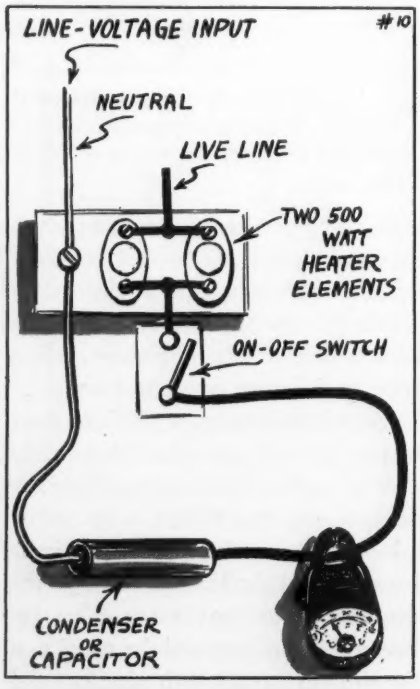
If the ammeter gives you a reading because the condenser or capacitor works properly, having neither an open circuit nor a short-circuit, you can compute the capacity in microfarads.

Simply substitute the amperage reading and proper line-voltage reading in this formula (based on 60-cycle current):

$$\text{Microfarads} = \frac{2650 \times \text{Amperes}}{\text{Line Voltage}}$$

Play safe, if you do not know much about condensers and capacitors, by keeping them on the line for only a few seconds at a time when you test as Diag. 10 shows. Motor-starting electrolytic capacitors, for example, are suitable for only intermittent duty. Make certain the condenser or capacitor is suitable for the voltage you apply in testing it.

Besides showing you how to increase the sensitivity of any clamp-on ammeter to almost any degree you desire, Diag. 11 reveals the ten-times multiplying secret built into the "doughnut" or "Triple-Purpose Amprobe-Energizer Model A-40," which first was mentioned with relation to Diag. 5.

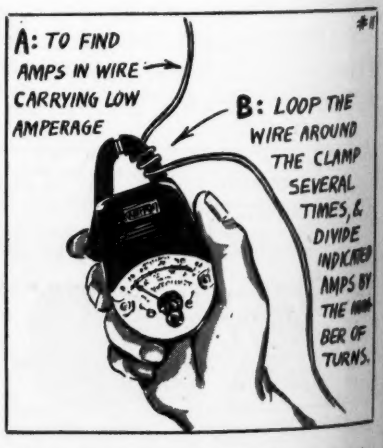


Diag. 10. *This test ascertains if a condenser or capacitor is no good because of a short-circuit or open circuit. If the condenser or capacity is good, test evaluates capacity in microfarads.*

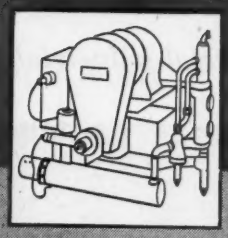
Clamp the ammeter over a wire, and you read on its scale the amperage flow of current through the wire—on a 25-ampere scale, in the case of the Amprobe instrument shown in the drawings and photographs.

But loop the wire three times around one of the jaws of the clamp-on ammeter, and its scale gives you a reading of three times the amperage value of the current flowing through the wire. Then, for example, a five-ampere flow of current through the wire will show up as a fifteen-ampere reading on the scale. Carry this as far as you desire. Make up a spool having 30 turns of wire and suitable for slipping

(*Please turn to page 154*)


A: TO FIND AMPS IN WIRE CARRYING LOW AMPERAGE
B: LOOP THE WIRE AROUND THE CLAMP SEVERAL TIMES, & DIVIDE INDICATED AMPS BY THE NUMBER OF TURNS.
#11

Diag. 11. *You multiply the sensitivity of any snap-on ammeter by looping a current-carrying wire around one of its jaws several times, as shown here. Thirty-times multiplication of ampere-reading sensitivity is easy (read text of article for details) and is helpful, for example, reading low amperes of control circuits or small motor circuits.*



COMMERCIAL & INDUSTRIAL oilburning

SECTION

fueloil & oil heat

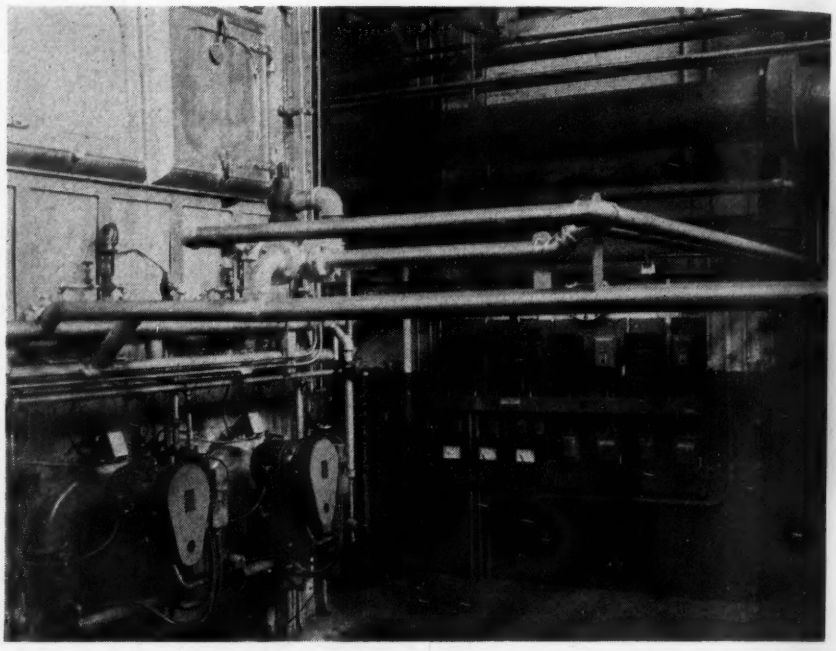
NEW YORK

COMMERCIAL & INDUSTRIAL oilburning

Dealers lag far behind industrial Manufacturers

Actual Performance of typical commercial-industrial Jobs does not reflect latest Progress

by
Jean L. Dupuis



COMMERCIAL-INDUSTRIAL oilburner performance, as found on actual installations, is years and years behind what it should be. Owners of typical C-I installations are being cheated, in that they are not receiving the benefits of latest advancements in the art of burning fueloil, particularly residual fueloil.

Equipment dealers, not manufacturers, are responsible for the lack of modern oilfiring equipment in typical boiler rooms. In the cases of widely used, modern equipment such as TV sets, powered-equipped automobiles, food freezers, household appliances, glamorous cookstoves, automatic toasters and coffee makers, etc., etc., the manufacturers have not lagged in producing ultra-modern equipment. And the dealers handling this equipment have not lagged in making certain the ultra-modern equipment found many purchasers and owners.

In the case of modern equipment for large oilfired boilers, the manufacturers have not lagged in producing ultra-modern equipment. But the dealers handling this equipment have lagged in putting it to use in thousands upon thousands of boiler rooms. The overall result is that in 1956 the typical oilfired boiler has firing equipment, controls, and specialties that were described in sales literature many, many years ago.

True, not every oilburner dealer in the commercial-industrial field is a laggard. Some few can't put to use fast enough the latest technical accomplishments of the manufacturers whose equipment they handle. Some few dealers handling high-capacity burners even step ahead of the accomplishments of the manufacturers supplying these burners. For example, recently a dealer revealed to FO&OH engineers that the manner in which he converted an ordinary steam-atomizing burner to fully automatic operation amazed the manufacturer of the burner. In technical accomplishments, this dealer's efforts and success exceeded those of the burner manufacturer.

(Incidentally, the dealer was cautioned that development work done for the benefit of just one installation usually is done unwisely and does not pay; and unusual arrangements may contain unusual risks, and are frowned upon by UL, Factory Mutual, FIA, and other authorities on safety who properly may be exceedingly interested in the dealer's installation).

Thus a certain few dealers use manufacturers' latest technical accomplishments quickly, and the rare dealer advances technically ahead of the manufacturers whose equipment he handles. Yet by-and-large typical commercial-industrial installations are years and years old, simply because the dealers interested in them have not made them modern in terms of 1956 thinking and equipment developments.

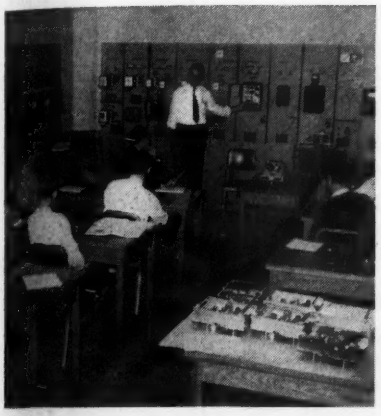
Just as exceptionally modern, lively equipment dealers are encountered occasionally in the commercial-industrial oilburner field, exceptional equipment manufacturers are encountered occasionally in this field. Unlike most manufacturers, these exceptions have not bothered to keep their thinking and equipment up to the times. Experts can point fingers at C-I burner manufacturers who in the past 15 or 20 years have not bothered much to bring out new burner models matched to today's fueloils and controls. But such manufacturers of commercial-industrial burner equipment are exceptions. Most manufacturers of such burners can prove that in recent years they made terrific efforts to produce burner models that can be described truthfully as ultra-modern, or at least plain modern in terms of the best thinking of 1956.

Talk this way to a dealer who sells horizontal rotary cup burners, for example, in an uninspired way. Accordingly to my experience, the dealer is likely to ask, "What's wrong with my not changing the pattern of my installations in recent years? Aren't jobs that were safe and efficient ten years ago, when I started commercial-industrial

fireye Control Progress

Burning Fuel Safely is Everybody's Business

Fireye School Makes Your Men Experts on Controls



To do a top-notch job of installing and servicing today's combustion safeguards requires up-to-date knowledge . . . of how they work, how to apply them, how to trouble-shoot an installation. All this know-how is in the data sheets and instruction bulletins, of course. But there's an easier way to get it . . . so thoroughly that you'll be the recognized expert in your area.

At the Fireye factory, in Boston, you or your experienced field men and engineers can spend a week of concentrated but informal study, guided by men who really know the answers. The course explains electronic safeguards for commercial and industrial installations . . . why they are designed as they are, how to apply them properly, how to install them, how to trouble-shoot if the need arises. In addition, it covers control system wiring, modulating systems, automatic damper controls, control accessories, and the application of this equipment to many different types of burners — reaching beyond Fireye's own products to many other topics of real practical value to you.

From start to finish, explanations are clear, concise. There is plenty of opportunity for questions and discussion. Classes are purposely kept small to allow maximum personal instruction. Hundreds of installers and servicemen in the field today have been equipped by Fireye training to do a thorough, competent job in any control situation.

There is no charge for the course, and Fireye picks up the hotel bill and the meal checks. Classes are scheduled practically every week. Write for full information and application forms.

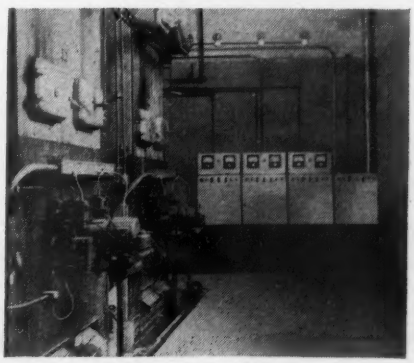
Safety and Fixed Cost are Reasons for Fireye Specification

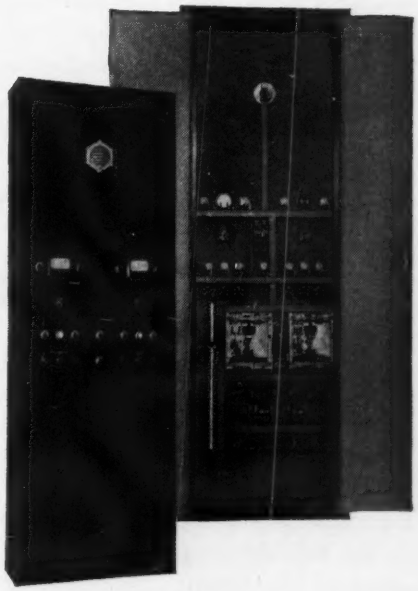
Ed and Pete Jackson, Industrial Oil Burner Corporation, Hartford, were among the first to introduce Fireye *Firetron* flame monitoring into their territory. Today any York-Shipley burner they install in and around Hartford is equipped with this completely modern protection.

When Ed and Pete got the job of supplying burner equipment for the new Manchester, Connecticut, Senior High School, they knew what to do about controls. They chose Fireye Panel Control Systems (with sequence draft control and draft and stack temperature indication) for monitoring pilot and main flame and automatically programming the operation of three heavy oil burners. An additional Fireye packaged system was installed for the water heater. As Ed Jackson puts it, "With these big burners firing 135 gallons an hour, we feel a lot safer with Fireye."

Another reason they favor Fireye is fixed cost and high quality of installation wiring. "We know at the very beginning how much the wiring job is going to cost us and what our profit will be."

These new Series AC Control Systems for automatic burners were written up in these columns last month. For reprints of that article, or any information about modern burner protection, just send a letter or postcard.





Custom Engineered Panels for Power Boilers

In addition to its standard line of control systems, Fireye offers a custom-engineering "extra" typified by the free-standing panel illustrated above. This is one of three recently shipped to Riegel Textile Corp., Trion, Ga., to provide integrated control of light-off and firing of a multi-burner installation using oil or gas in combination with pulverized coal. Specially designed systems like this, factory-built and tested, are the answer for installations that are unusually complex, or require additional panel features, or need careful integration with the instrument panels of other manufacturers.

E A fireye

COMBUSTION CONTROL DIVISION
ELECTRONICS CORPORATION OF AMERICA

Dept. C20-5, 718 Beacon Street, Boston, Mass.

In Canada, write Electronics Corporation of America (Canada) Ltd., Box 111, 98 Advance Road, Toronto 18

work, safe enough and efficient enough today? What's wrong with me if I am determined simply to keep a ten-year-old job as good as new—as dependable as it was during its first year?"

If you want to be brutally truthful in answering the dealer who asks these questions, first in nine cases out of ten you can point out that the installations the dealer completed even five to ten years ago were not ultra-modern at the time he completed them.

Just as the dealer is not determined to produce only ultra-modern installations today, five or ten years ago he was not determined to produce only ultra-modern installations.

The dealer who has been lagging behind the times, with respect to discriminating between old-fashioned and modern equipment for use on his installations, needs briefing on some of the advancements made in recent years in the field of commercial-industrial oilburner equipment, including of course all the controls, accessories, and appurtenances used in this field to produce a complete installation.

The dealer needs such pointers as these, for example:

1. Electronic combustion-safety controls have, within the space of relatively few years, become mandatory for so many commercial-industrial oilburners that a dealer is not qualified to install and service such burners if his men are not experts at installing and servicing electronic combustion-safety controls. Above certain gph firing rates, no controls except electronic controls act rapidly enough (within two to four seconds) in case of flame failure —according to the most authoritative and best informed experts on oilburner safety—and electronic monitoring of gas pilots on start-ups provides the only adequate protection against damage caused by ignition delay, or ignition failure coupled with late light-off by hot firebox refractory material.

Face this fact which jibes with the best thinking of safety experts, and with the rules and regulations of several important states and insurance organizations: A dealer not capable of installing and servicing properly the modern electronic combustion-safety controls, is not safe at installing and servicing commercial-industrial oilburner equipment.

2. The use of draft inducers or induced-draft blowers has increased greatly in recent years, especially on large installations, to the degree that a dealer is not qualified to handle many everyday problems unless he knows much about draft inducers and the safety devices and other specialties used with them. Draft inducers must be used to solve chimney-draft problems on many existing installations. On new jobs, draft inducers are being used widely to avoid chimney problems, and to avoid the greater expense of building big chimneys.

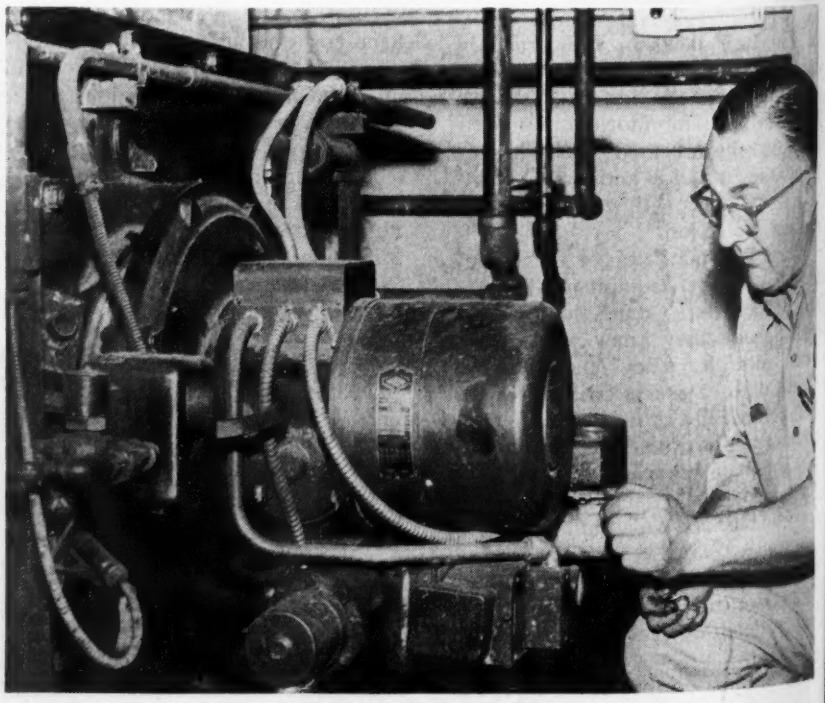
Draft inducers also are being installed in great numbers to avoid disfiguring new, low buildings (including garden apartments, modern factories, and large school buildings) by adding unsightly, high chimneys to them. Near air fields, draft inducers often must be used instead of tall chimneys.

3. Fashions have changed in recent years in the field of package-type oilboilers, for commercial-industrial jobs, and large boilers especially designed for oilfiring but not having integral oilburners provided by the boiler manufacturers. Induced draft, just mentioned, is used for many such boilers. Many new oilfired boilers not employing the induced-draft principle have forced-draft for the secondary air, as well as for the primary air, in the case of rotary-cup oilburners.

In the field of big boilers intended for oilfiring, then, the trend is towards use of 100% blower-air for combustion. The trend is away from the old idea, the only idea recognized by conversion burner dealers for many, many years, that excellent performance results from depending on natural draft (provided by a chimney) to furnish about 80% of the air needed for combustion. The new basis is that you always can depend on the performance of blowers, but on too many installations you can't depend on the natural draft provided by chimneys.

4. For many years a relatively few outstanding oilburner dealers have been specialists at installing large-building heat-control systems—and at improving already installed steam heating plants so that they distribute the steam properly to all the radiators in the systems when the burners start and stop properly. During recent years, more and more commercial-industrial oilburner dealers finally have seen the wisdom in learning how to control heat properly in largest buildings.

If you can't do that, you fall far short of being able to provide owners of big buildings with all the benefits (and with the characteristic fuel-bill economy) latent in commercial-indus-



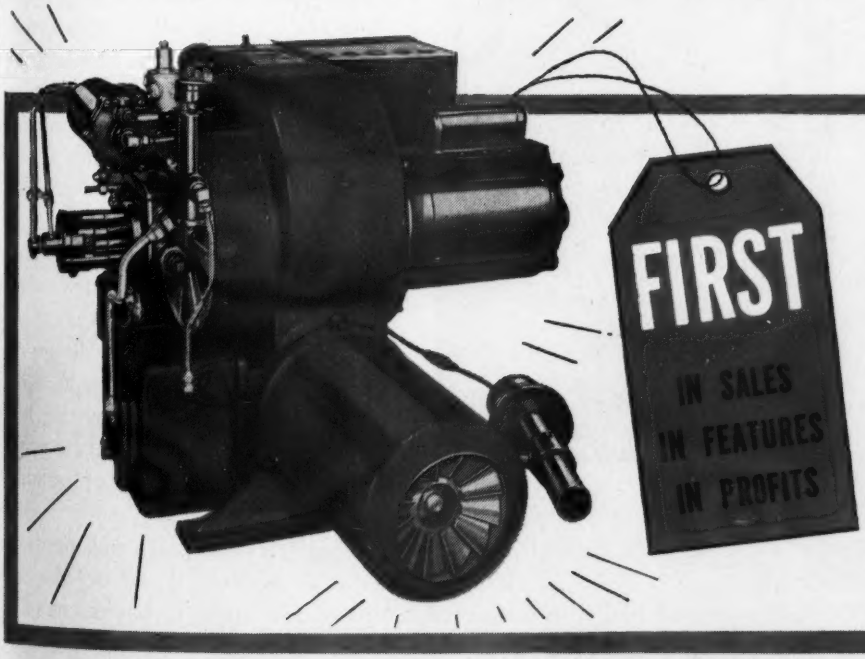
in burners as in racing

. . . everyone follows the winner!

IN selling burners or playing the horses — *only* the winner pays off! "Also-rans" are a waste of time and money.

Hev-E-Oil Burner has been a standout leader for 16 years in features . . . performance . . . economy. It leaves ordinary burners — imitators of Hev-E-Oil Burners — far behind.

Alert dealers and distributors are quick to see the reason for Hev-E-Oil leadership. Intensive research and development, coupled with creative engineering, get the most out of modern fuel oils . . . assure a quality product that builds your business. It takes superior features to win leadership in this field!



- **Proportioned oil-air mixed inside the nozzle gives perfect atomization of light or heavy oil at low, medium or high fire.**
- **Oil is metered *exactly* — by a metering pump.**
- **Burner delays starting until oil at the nozzle is hot enough for electric ignition.**
- **Automatic pressure lubrication.**
- **Low-fire start.**
- **Flame size quickly set for both low and high fire at maximum efficiency.**
- **Choose from six sizes: 1 to 60 gph.**

For further information, drop a line to:

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25th YEAR

HEV-E-OIL BURNER . . . A quality product that builds your business

trial oilburners which use residual fuel-oils. If you can't handle the problem of controlling the heat in a large building in a fashion that's ultra-modern, you can't solve the problem of providing proper oil heat in a big building.

5. The developments of recent years have produced a vast array of greatly improved specialties and controls that make for much greater safety than could be realized years ago. This does not relate to combustion-safety controls of oilburners themselves, covered early here in item #1. It relates to safety from explosions of hot-water tanks, and steam and hot-water heating boilers (Btu-rated relief valves are needed for such tanks and boilers, according to ideas developed in recent years). It relates to new safety arrangements that prevent damage from leaks in indirect fueloil heaters.

The boiler rooms in which a dealer's men install and service oilburners are not safe in 99 cases out of 100 if the dealer does not concentrate on safety. He can't provide safety in terms of the improved thinking of recent years, if he has not become a modern specialist at providing safety.

6. In the realm of power plant boilers and boilers of largest heating plants, new ideas related to instrumentation and recorders have developed in recent years. Knowledge of instruments and recorders is needed by an oilburner dealer who aims to be competent at handling commercial-industrial oilburner problems.

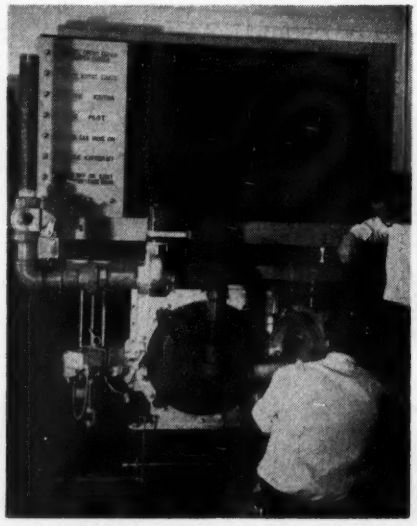
7. Fueloil handling and burning equipment, used on oilburner jobs, has changed in recent years to match changes in fueloils. Gun-type burners having electric oil heaters to make them suitable for Nos. 4 and 5 fueloils have become increasingly popular; two makes of these have been well known for years, and recently two more manufacturers added such burners to their lines.

Problems of burning No. 6 fueloil have become much more difficult because in recent years this grade has become heavier and heavier. Burners of several makes therefore have been changed radically to make them able to handle and atomize the much heavier No. 6 fueloil. New ideas have been developed regarding on-the-job storage and handling of the new No. 6 fueloils.

For details of these ideas, see the excellent article "Handling and Burning Today's No. 6 Oils" by G. W. Bohn, in the March issue of FUELOIL & OIL HEAT. Presenting thinking far ahead of that employed in designing most heavy-oil installations in use today, this article recommends:

a. That all the No. 6 oil stored on-the-job be maintained at a temperature higher than the pour-point temperature of the oil; new to many commercial-industrial burner experts, this idea should lead to greatly increased use of tank-located steam and hot-water fueloil heating equipment.

b. Maintaining sufficiently high fueloil temperatures in the entire suction line, and in the fueloil storage tank at the location of the fueloil that enters



the suction line, so that the fueloil will flow easily into and through the suction line.

c. Heating the fueloil to be burned to temperatures high enough to insure proper atomization and efficient, clean combustion.

The above ideas of G. W. Bohn should carry much weight and influence the design of many new installations for No. 6 oil. Also, they should cause many existing installations to be improved. The expense of providing the equipment to heat all the No. 6 oil stored on-the-job in the storage tank is shockingly high in the eyes of many C-I burner experts (and owners of already installed burners!). But that expense simply is necessary on many installations for proper, dependable operation.

To recapitulate briefly, the preceding points, aimed to goad a sleepy C-I burner dealer into modern action, cover these items:

1. Today a dealer is not competent to install and service commercial-industrial burners, if he cannot install and service electronic combustion-safety controls.

2. Draft inducers or induced-draft blowers now are being used much more widely than in previous years.

3. Dealers, if they aim to think along 1956 lines, must learn the new principles of package-type oil-boilers, and new boilers designed especially for oil.

4. Modern large-building heat-control systems, which gear the heat cycling to outside weather, are necessary for proper oilheating of big buildings.

5. Dealers must learn and apply new ideas on boiler-room safety. Many of these ideas apply to equipment other than the oilburners themselves.

6. Dealers can't produce modern results on C-I installations without employing new ideas related to instrumentation and recording; smoke indicating and recording equipment, as just one item, is gaining vast popularity though it was unheard of as far as most C-I equipment dealers were concerned only a few years ago.

7. To keep up with changing times,

especially with changes in No. 6 fuel-oil, dealers must renovate and modernize their ideas about proper heating and pumping of residual fueloils, particular on installations having automatic burners.

Expected refinements in thinking and equipment are involved in some of the preceding points. Other points reflect the trend towards larger automatic installations, tougher safety regulations and insurance requirements, and much heavier No. 6 fueloil.

One point related to changing times in the commercial-industrial field has not been covered. For years to be capable, competent, thorough and modern an oilburner dealer had to have combustion testing instruments and the know-how to use them. Today a dealer's servicing efforts are inadequate if they do not include testing volts, amperes, and ohms.

To do everyday, on-the-job checking of certain electronic controls, a serviceman simply has to read microamps, millionths of amps. Dears doing commercial-industrial oilburner work should simply face that fact squarely.

Facing the facts which reflect the terrific improvements made in recent years in C-I oilburner equipment is the first step towards making certain that typical boiler rooms will receive the benefits of the latest advancements in the art of burning residual fueloils. You may wonder about the author's use of the word "art" in the preceding sentence. Here's one meaning of "art" according to his favorite dictionary: Human contrivance or ingenuity, as in adapting natural things to man's use.

❖

Power and Combustion, Inc., Baltimore, covering the state of Maryland; *Gulf-South Eng. Co.*, Birmingham, Ala., in northern and central Alabama; and *Bell and Co.*, Mobile, Ala., in southern Alabama, named sales representatives for L. J. Wing Mfg. Co.

R. F. MacDonald Co., San Francisco, Calif., appointed manufacturers' representative for Cleaver-Brooks boiler equipment. Territory includes northern California and western Nevada.

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Wheelco Flame-otrol provides the finest flame supervision possible for all burners.

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COMMERCIAL & INDUSTRIAL oilburning

Burning Oil in a Temple

Oilheating Bahai House of Worship with its 138 ft. high, domed Roof posed some Problems

OIL HAS FURNISHED light and heat for centuries throughout the world. To look at a factory, skyscraper or other evidence of the progress of civilization, it is natural to suppose that fires are producing heat or power.

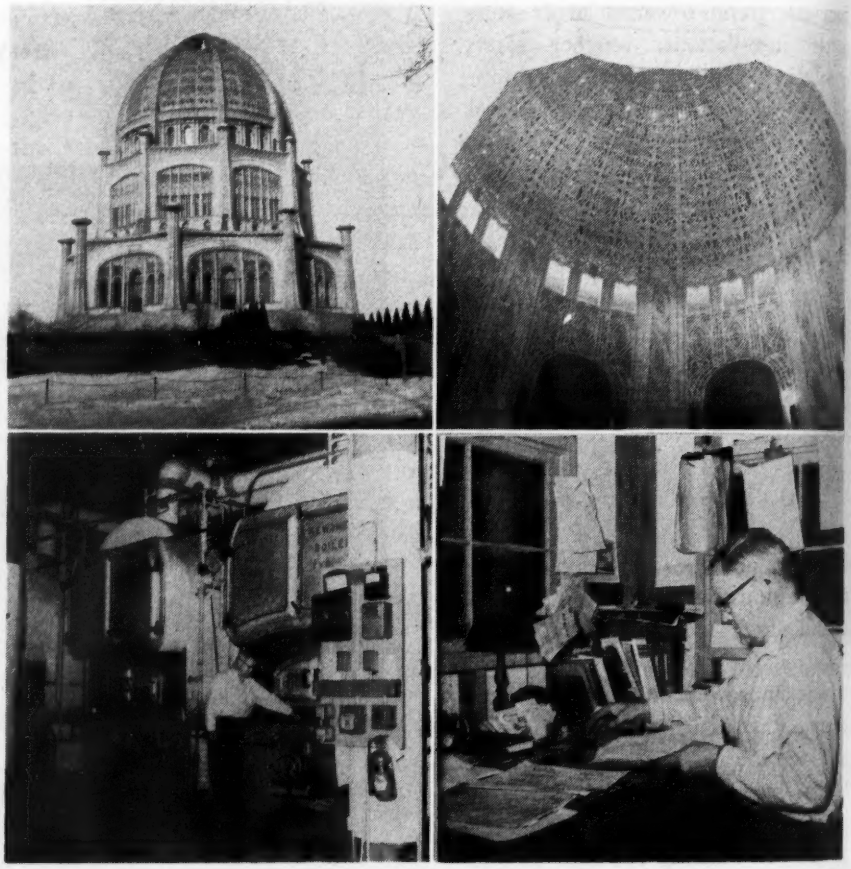
The beauty and majesty of temples, mosques, synagogues, cathedrals and other structures which man uses for spiritual purposes, frequently overshadow the thoughts of mechanical means of providing the necessary physical comfort.

Thousands of residents and visitors have driven north from Chicago on Lakeshore Drive and Sheridan Road, through the Campus of Northwestern University in Evanston and approached the suburb of Wilmette. When entering Wilmette, on Sheridan Road, the shore of Lake Michigan is at the right side, and in the midst of beautifully landscaped gardens is a temple of unique architecture. This is the Bahai House of Worship. The faith and teachings of Bahai are interesting but would be somewhat out of place in FUELOIL & OIL HEAT.

The engineering required to fit in with the architectural design is somewhat out of the ordinary. To comprehend some of the problems the following data will provide a better idea than pictures:

Seating capacity of auditorium ..	1,200
Height from floor of basement to pinnacle of dome ribs	191′
Height of structure from main floor to pinnacles of dome ribs	165′
Height of auditorium from main floor to inside apex of dome ..	138′
Depth of caissons	120′
Diameter of basement floor	204′
Outside diameter of dome	90′
Inside diameter of dome	72′
Number of sections of ornamentations comprising the dome and ribs	387
Perforation of dome surface	30%

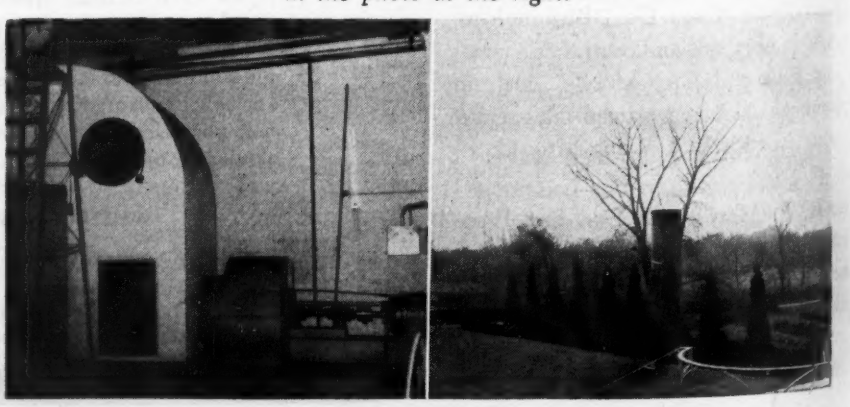
From this it will be seen that the nine-sided structure is topped with a dome which is 138 feet above the main floor. The inside diameter of the dome



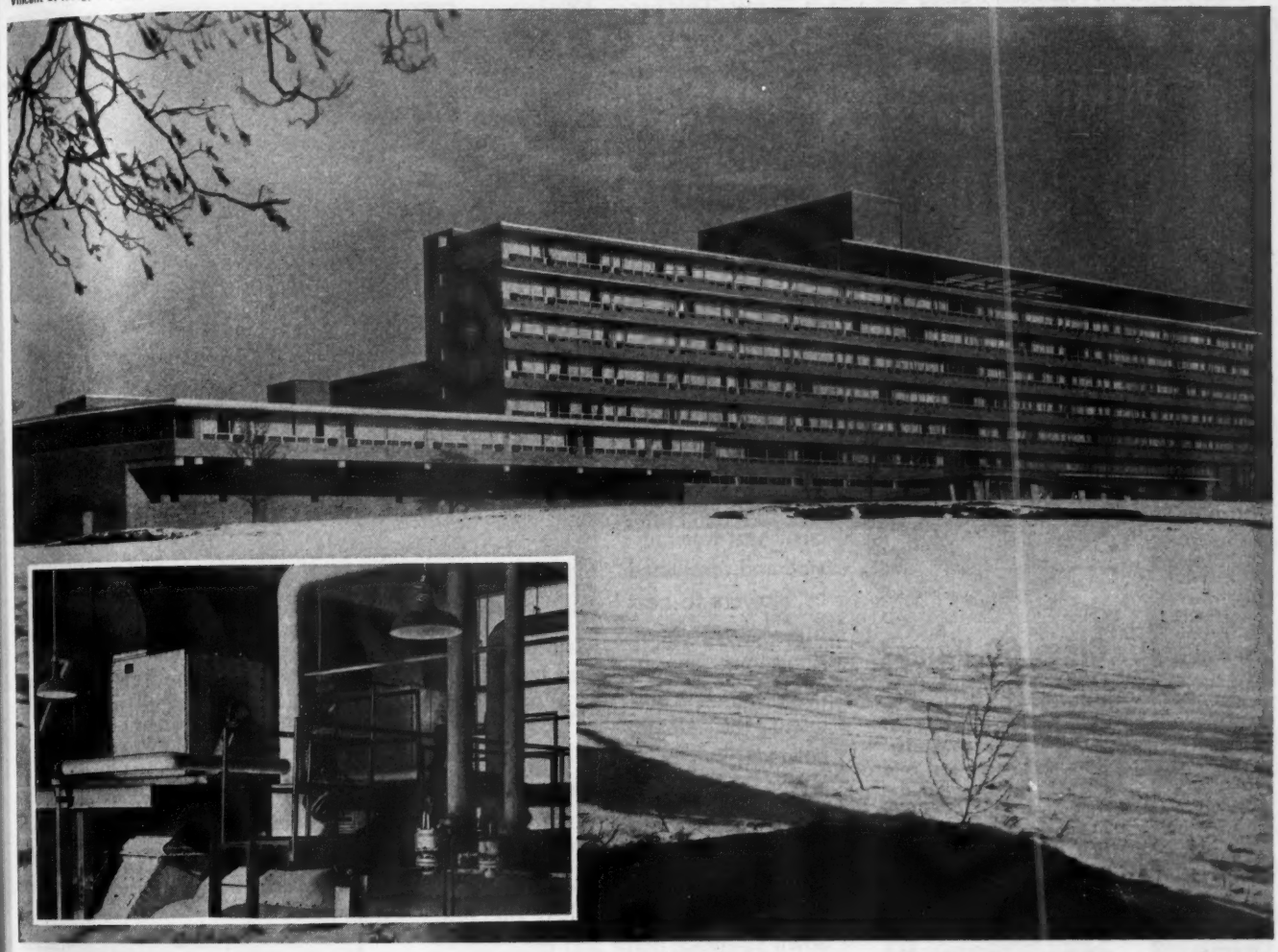
Upper photos: *The Bahai House of Worship, shown at the left, a nine-sided temple with each side facing a formal garden and fountain, gives no evidence of having a heating system. The interior of the dome, shown at the right, is approximately eight stories above the auditorium floor. It proved a difficult place to control heat.*

Lower photos: *L. W. Cooper, superintendent of buildings and grounds, is shown, first, checking the oilburners that fire the three Kewanee boilers in the temple and then in his basement office checking reports.*

Flue gases *are not carried to the top of the temple. Instead the exhaust fan at the left pulls them out of the boiler and forces them through a horizontal tunnel to a stack located at a remote point on the Temple grounds. The stack is shown in the photo at the right.*



Vincent G. Kling, Architect | A. Ernest D'Ambly, Mechanical Engineer | W. M. Anderson Company, Mechanical Contractors

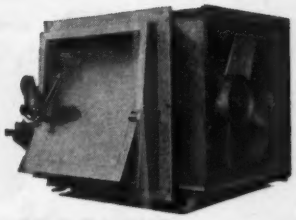


The Last Word in Modern Hospital Design Naturally Uses the Last Word in Mechanical Draft

THE LANKENAU HOSPITAL, in the suburbs of Philadelphia, is one of the world's most modern hospitals, both in architecture and equipment. The hospital itself was established in Philadelphia in the mid-nineteenth century, and has a distinguished history. It moved to its new building in 1953. In specifying equipment, its designers selected the most modern, the most efficient, the most scientific that could be found.

When it came to draft inducers for the boiler plant, they naturally selected Wing, which fulfill all those requirements, and in addition have back of them a lineage almost as old as Lankenau's own.

Wing Draft Inducers cut capital cost through elimination of high stacks, reduce maintenance costs, and result in sizeable fuel savings. They provide positive, adequate, uniform draft for boilers or furnaces entirely independent of weather conditions. And they save money through higher fuel-burning efficiencies. You should learn more about them. Write for Bulletin I-56.



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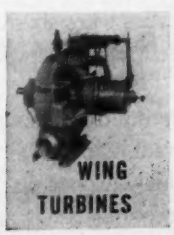
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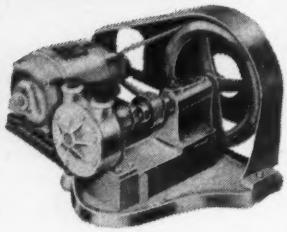
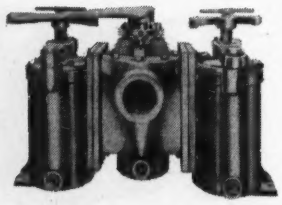


Class 60 Pumps

Of the internal gear type, the "60" is machined to close tolerances—for maximum vacuum characteristics with heavy and cold oil. The outstanding design advantage is the ball bearing, V-belt reduction drive—connected to pump by means of loose coupling, which eliminates side deflection from pump shaft. Suction and discharge sizes from ½" to 2". Capacities, 75 to 2100 GPH; pressures to 100 psi.

Write for Bulletin A-1193



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Adequate strainers for both suction and discharge service are essential on every heavy oil installation. Available with Underwriters Labels from ¼" to 4"; larger sizes up to 6".

Advantages of our design are: ease of cleaning; interchangeability of separator baskets — from coarse straining to fine filtration; elimination of replacement filter costs—cleaning of removable separator baskets restores original efficiency.

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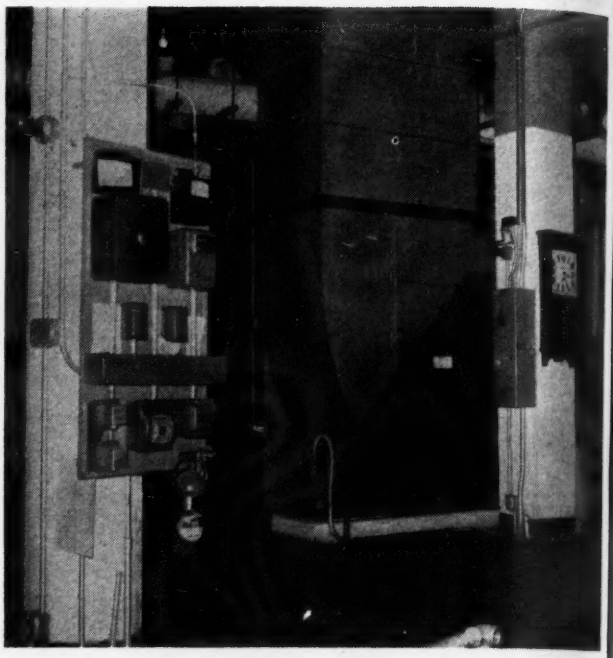
is 72 feet. This produces a single room with a floor space suitable for seating 1200 people with a ceiling 138 feet high.

When the building was completed the engineers were confronted with a problem. The three oilfired Kewanee boilers produced ample steam. When passed through heat exchangers, sufficient heat was radiated and conducted by blowers to heat this entire space. Enormous quantities of heat rose and filled the dome, however, where it served no purpose, and the occupants of the auditorium were not comfortably warm.



Main duct *from heat exchanger to auditorium. To prevent heat from accumulating in the dome of the Temple, exhaust fans pull the heated air down and recirculate it at the auditorium level.*

This was corrected by the use of exhaust fans which pulled the heat down from the dome and recirculated it at the auditorium level.

It is also noteworthy, if not new, that no attempt was made to carry the flue gases from the boilers to or near the top of the temple. An induced draft fan pulls the gases of combustion down through the floor of the boiler room and projects them through a horizontal tunnel to a short vertical stack several hundred feet from the temple.

L. W. Cooper, Superintendent of Buildings and Grounds, is enthusiastic over oil heat. With modern electronic controls and a well engineered plant he derives a genuine satisfaction in combining the useful with the beautiful.

Pipe sizing Chart for Use with "Handling No. 6 Oils" Article

THE ARTICLE in the March 1956 issue, "Handling and burning today's No. 6 Oils," by G. W. Bohn, vice-president in charge of engineering, Preferred Utilities Mfg. Corp., New York 23, N. Y., outlined three principal steps to following in designing residual oil installations. Accompanying the articles were six diagrams, which illustrated the various points described.

Inadvertently omitted, though, was a seventh diagram, a pipeline friction chart, from which proper size piping for any job conditions could be determined. Diag. 7, then, presented herewith, is a chart showing pressure drop in pipes when handling fueloil of 5000 SSU viscosity, the high limit for easy pumpability.

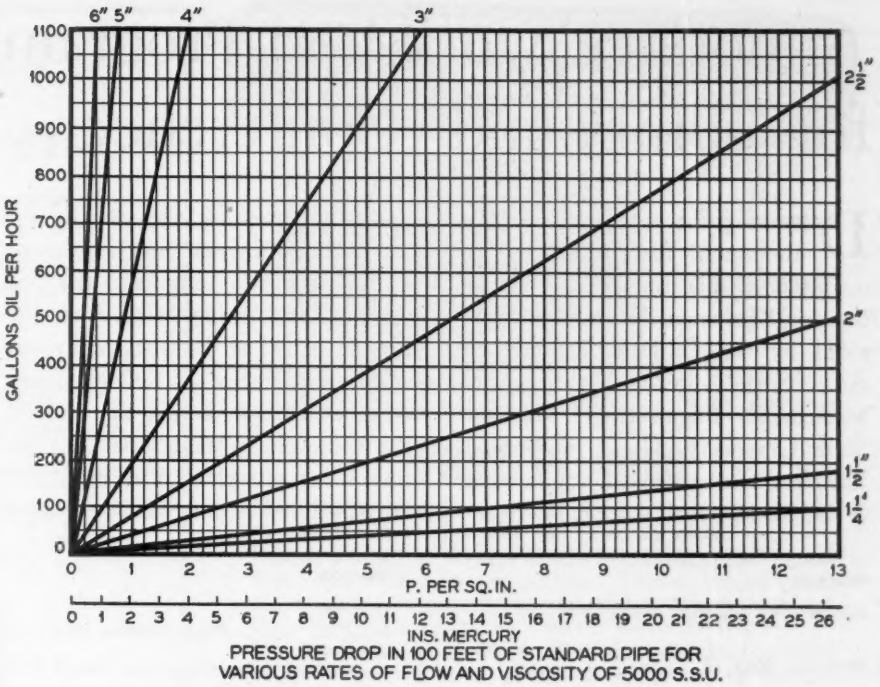
The chart covers pipe sizes from 1¼" to 6" diameter and gives rates of flow from zero to 100 gph. Friction drops shown are for 100 ft. lengths of piping; pressure drops are shown in lbs. per sq. in. and in ins. of mercury.

A suitable allowance has been made on the chart for losses due to elbows and fittings as commonly employed. In addition to pipe allowances, further

allowances must be made for pressure drops through strainers, heaters, small connections and vertical pipe sections. Typical allowances for the above at normal pumping temperatures are:

Strainers—1″ to 2″ vacuum
Suction Heaters—1″ to 3″ vacuum
Discharge Heaters—2. to 6. psi
Vertical Lift—.85″ vac. per ft.
Vertical Riser—.42″ psi per ft.

Assume in Diag. 7 with the oil at 5000 SSU viscosity that it is desired to move oil through 100 ft. of pipe at a rate of 300 gph, with a maximum pressure drop of 8″ of Hg. Note that the proper pipe size would be 2½″ diameter. This is determined by following the vertical line from 8″ Hg., shown on the lower horizontal line, to the intersection of the horizontal extension of 300 gph pumping rate. Since these vertical and horizontal extensions meet approximately at the diagonal line indicating 2½″ pipe line size, this would be the piping size used under these conditions.



Diag. 7. *Pipeline friction chart to determine proper pipe sizing, covering conditions when handling fueloil of 5000 SSU, the limit of easy pumpability.*

Preferred Utilities has worked out similar charts for determining pipe sizes for installations handling No. 6 oils with viscosities up to 20,000 ssu.

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Announce workshop Program for comm.-ind. Conference

COMMERCIAL & INDUSTRIAL oilburning

DETAILS of the program have been announced for the second annual Commercial-Industrial Oilburning and Equipment Workshop, sponsored by the Oil-Heat Institute of America, Inc. and the Department of Mechanical Engineering, Michigan State University. C. H. Pesterfield, Professor of Mechanical Engineering, is the institutional representative.

Headquarters for the workshop is the Kellogg Center for Continuing Education on the campus of the University, East Lansing, Mich. And, during the period of the workshop rooms will be available at the Kellogg Center or at downtown hotels, the Olds or the Roosevelt. Costs include $25 registration fee, plus charges for meals that are scheduled as part of the program.

PROGRAM

Meetings in the Auditorium, Kellogg Center

Monday, May 14

MORNING

Chairman—J. W. Cowan

8:30 REGISTRATION—Kellogg Center Conference Desk
9:30 OPENING OF CONFERENCE
Address of Welcome—Harold Sponberg
9:40 *Commercial-Industrial Fuels*—What Are They?—R. H. Dudley
10:30 *Explanation of Viscosity Chart*—R. J. Boyink
10:50 COFFEE BREAK
11:00 *Chemical Additives for Residual Fuel*—Harris Thompson
11:45 LUNCHEON—Big 10 Room

AFTERNOON

1:15 to 5:00

Workshop #1: Pumping, Piping, Preheating, Handling of Residual Oil
Leaders: J. W. Cowan, R. Lisson, Larry Babcock, E. W. Mautner, Perry Best

Workshop #2: Calculating Building Heat Losses and Make-Up Air Losses, Process Equipment Loads, Boiler and Burner Selection
Leaders: L. G. Miller, Robert Rowland, L. W. Charlet, Joseph Day, Perry Best

Workshop #3: Preventive Maintenance, Service and Installation, Controls
Leaders: Ted Kaufman, W. S. Harlacher, Dana Fisher, Carl Swanson, Perry Best

6:00 DINNER—Big 10 Room
7:00 *Good Engineering Pays*—Stewart Pirie

Tuesday, May 15

MORNING

Chairman—Fred Hainer

9:00 *Refractories and Combustion Chamber Design*—Karl Breit
10:00 COFFEE BREAK
10:15 *Combustion Efficiency*—George A. Short
11:00 *Steam Generators*—Fred Hainer
11:45 LUNCHEON—Big 10 Room

AFTERNOON

1:15 to 5:00
Repetition of Workshops #1, 2, and 3
6:00 BANQUET—M.S.U. Staff
Managing Your Business (Law, Taxes, and Accounting)
Michigan State University Staff

Wednesday, May 16

MORNING

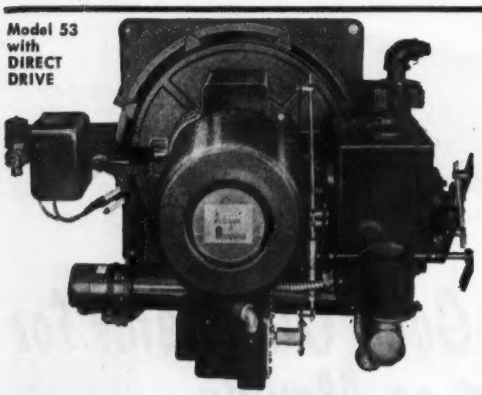
Chairman—Ray Berwald

9:00 *Profitable Service Program*—Milton Way
10:15 COFFEE BREAK
10:30 *Ethics in Engineering*—Kenneth M. Wilson
11:00 *Specifications and Quotations for New Construction*—J. B. Johnson
11:45 LUNCHEON—Big 10 Room

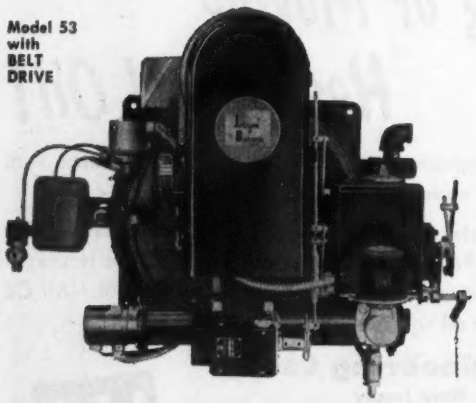
AFTERNOON

1:15 to 5:00
Repetition of Workshops #1, 2, and 3

Model 53 with DIRECT DRIVE



Model 53 with BELT DRIVE



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Positive "Cold Starts"
Higher Efficiency
Greater Economy

JOHNSON Model 53
METERING PUMP BURNERS

This revolutionary new Johnson "Fifty Three" will give you smooth, sure, automatic "Starts" even when the oil in storage tank and lines is cold and hard to pump. It is built with a positive-displacement Metering Pump . . . a 3-Way Magnetic Oil Valve . . . and a high-efficiency Suction Pump that enable the "Fifty Three" to maintain a fixed air-fuel-ratio regardless of variations in oil temperature and viscosity. It will start up and operate automatically on colder oils than any other burner on the market. Never before has any burner so successfully solved the "Cold Starts" problem.

It is available with either Direct Drive or Belt Drive in 8 sizes from 25 HP to 500 HP . . . with all the fine engineering that have made Johnson Burners famous for economy and high efficiency for over half a century. It's built with all working parts readily accessible for easy servicing, inspection or regulating. If you haven't seen it yet, make it a point to investigate this revolutionary new burner. May we send you a copy of our beautiful new Model Fifty Three brochure?

Johnson Oil Burners

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The book, "COMMERCIAL-INDUSTRIAL OILBURNING," contains a series of articles on the subjects that have appeared in the magazine FUELOIL & OIL HEAT, including 12 features by Kalman Steiner on the "Design of the industrial installation."

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This 80-page book is available with self-cover, 8½ x 11 page size, profusely illustrated with photographs, charts and diagrams. Price: $2.00. Postpaid. Please mail remittance with order.

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SAFETY SWITCH THAT SHUTS OFF FUEL IF BLOWER FAILS

Protection for Oil Burners • Industrial Ovens • Power Gas Burners

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The Dewey Safety Air-Flow Switch protects against opening of fuel valve until fan is up to speed.

Insures purging of furnace before fuel valve opens. Closes fuel valve if fan slows up or stops. Flashes danger signal if fan or fuel stops. Safeguards against danger from gas fuel failure when used with safety shut-off valve.

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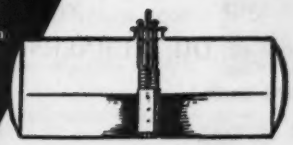

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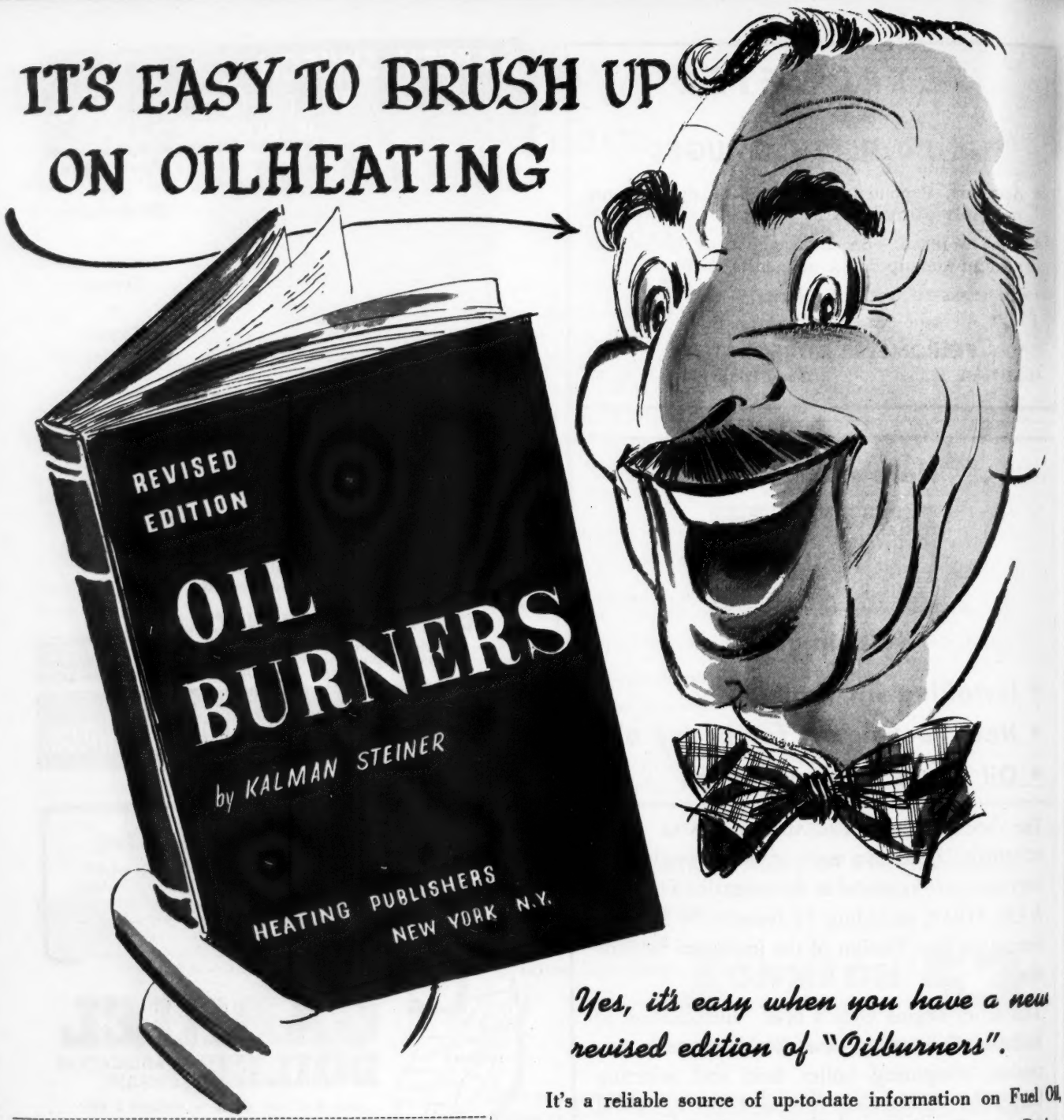

Yes, it's easy when you have a new revised edition of "Oilburners".

It's a reliable source of up-to-date information on Fuel Oil, Oilburners, Fuel Data, Problems of Oil Burner Design, Domestic Oil Burners, Fans & Electric Motors, Fueloil Pumps, Ignition Methods, Capacity of Boilers and Warm Air Furnaces, etc. It is one of the most complete oilburner books ever published.

You can find the assistance you need in solving today's oil-burner problems. Heating men can keep abreast of the times and plan ahead because of the valuable and helpful information contained in this *New Revised Edition*—"OIL BURNERS." You learn from the creative work of specialists by studying their methods, proofs, and conclusions.

—o—

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Heating Publishers, Inc.
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Enclosed is our (check), (money order).

Open View
Closed View

CLEVELAND LO-DRAFT CUT-OFF

the original "FAIL-SAFE" draft switch with TIME DELAY

CFE Lo-Draft Cut-Off is designed to prevent explosions or damage to boiler by automatically cutting off burner when draft fails, whether induced or natural. Cut-off point is adjustable over complete range. Models available for positive (pressure) or negative (draft) operation.

Inquire about specially engineered models to meet unusual requirements including pre-purge, post-purge and other safety features—write to:

Check these Lo-Draft Cut-Off Features:

- Adjustable cut-off point
- Time delay prevents shut down from "puffs"
- Signal light shows low draft condition
- Terminals for alarm or remote signal
- Extra-sensitive, positive on-off switch
- Absolutely fail safe—Failure of any component immediately cuts off burner

Cleveland Fuel Equipment Company
1109 Brookpark Road, Cleveland 9, Ohio
In Canada, write to: Ontor Laboratories Inc., 111 Tycos Drive, Toronto

Stated objective of the workshop is to promote a better understanding of oil as a fuel in the commercial-industrial field; the equipment used and required and the matter of specifying and securing it. The program of the conference has been designed to interest graduates and practicing engineers, architects, consulting engineers, jobbers and dealers in charge of heavy oil installation work in factories, commercial buildings, hospitals and schools.

The afternoon program for the three days of the conference is devoted to three workshops. One covers pumping, piping, preheating, handling of residual oil; a second deals with the calculation of building heat losses and make-up air losses, process equipment loads, boiler and burner selection; the third covers preventive maintenance, service and installation, controls. Each workshop will be conducted by a discussion leader, plus four other participants. In general each session will start with short addresses on pertinent subjects, followed by actual small panel operation procedures.

Fireye service training School is held by Combustion Control

A WEEKLY Fireye Service Training Course is being offered by the Combustion Control Division, Electronics Corp. of America at its factory in Boston, Mass.

The five-day course covers electronic combustion safeguards, control system wiring, modulating systems, automatic damper controls and accessory equipment. There is no charge for the course and the company provides hotel accommodations and meals. For details write D. N. Fisher in care of the company, 718 Beacon St., Boston 15.

Sales Engineers are promoted by M-H's Industrial Division

THREE FIELD SALES ENGINEERS have been promoted to key Industrial Division posts by Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.

James W. Hughes has been named regional industrial sales manager for

COMMERCIAL & INDUSTRIAL oilburning

the Midwest region with headquarters in Chicago. Raymond A. Zack has been appointed industrial sales manager in the Hammond, Ind., branch office, and Paul R. Sharadin has been made regional application engineer for the Southwestern region with headquarters in Dallas.

Hev-e-Oil Burner Distributors name District sales Managers

TWO DISTRICT sales managers were recently appointed by Hev-e-Oil Distributors, New York, N. Y.

Wallace Cullen will supervise sales in Brooklyn, Queens, Nassau and Suffolk counties. Previously he had been with Perfex as a representative.

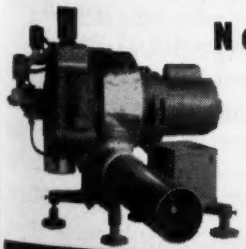
Peter De Carlo will be in charge of Manhattan, Bronx and Westchester territories.

NEW IMPROVED

RAYFIELD-STAFFCO

AUTOMATIC

No. 5 OIL BURNERS



REDUCE HEATING COSTS . . . INCREASE YOUR PROFITS

Burn No. 5 heavy fuel oil. Self-contained, all electric. Self-lubricating. Many new exclusive features. From a bungalow to a skyscraper . . . there's a dependable Rayfield-Staffco Oil Burner to handle your heating job. Write for full details.

RAYFIELD-STAFFCO BURNER CO.
2066 CANALPORT AVENUE CHICAGO 8, ILLINOIS

Preferred Anti-Syphon Valves

Meet Every Code

Non-Adjustable—Angle Type for convenient installation. Heavy Bronze Construction. Approved by Underwriters' Labs., Inc.

TYPE A—1¼" to 3". Maximum capacity to 1000 G.P.H., with #5 and #6 oil.

TYPE B—¾" and 1". Maximum capacity to 100 G.P.H., for #1 to #5 oil.

TYPE C—⅜" and ½". Maximum capacity to 30 G.P.H. of #1 to #3 oil.

Write for Bulletin 1619

PREFERRED UTILITIES MFG. CORP.
1860 BROADWAY Dept. OH NEW YORK 23, N. Y.

BRING YOURSELF UP TO DATE ON PETRO

T.M. REG. U.S. PAT. OFF.

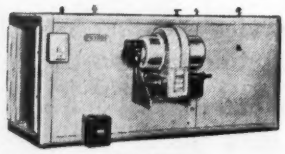
Here's a quick rundown on the great line of Petro oil heating and firing equipment

RESIDENTIAL OIL BURNER

A sturdy, precision-built pressure burner with an excellent record of fuel economy and service-free operation. Also available with flange mount. 0.6 to 3.5 gallons per hour.

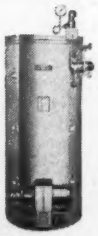
LOWBOY AND HIGHBOY FURNACES

Wide range of sizes in lowboy and highboy models. Welded plate steel heat exchangers. Very fast heaters. Baked enamel finish. Adjustable speed blowers. Uses Petro oil burners.



HORIZONTAL FURNACES

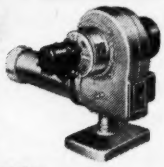
Compact size permits installation in attic, crawlspace, or can be suspended in basement or garage. Complete winter air conditioning unit. Reversible for easy installation.



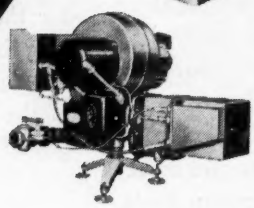
OIL FIRED WATER HEATERS AND BOILERS

Complete line of automatic water heaters. Also boilers for all types of steam and hot water heating. Fire tube and water leg design for extra fast heating.

COMMERCIAL OIL BURNERS



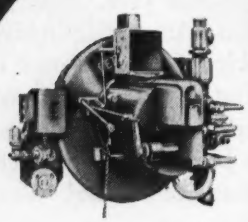
Pressure type burners of high efficiency and exceptional dependability, for No. 2 oil or lighter. 3 to 30 gallons per hour.



COMMERCIAL GAS-OIL BURNERS

Switches fuels instantly. For No. 2 oil or lighter, 5 to 20 gallons per hour. Gas capacity, 500,000 to 3,000,000 Btu input.

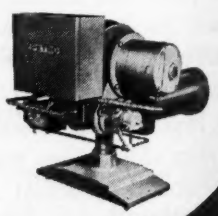
ROTARY OIL BURNER FOR HEAVY OILS



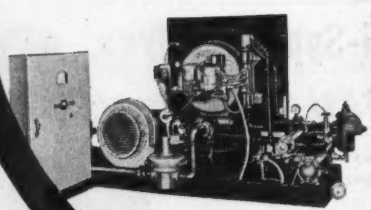
The Petro Thermal Viscosity principle for heavy oil control enables this burner to operate with the high viscosity fuels (Nos. 5 and 6) with complete dependability. Capacities from 8 to 200 gallons per hour. Convertible to gas-oil firing.

LOW PRESSURE BURNER FOR HEAVY OILS

No other burner like it. Advantages: fires any oil, No. 5 or lighter, full modulating flame. Capacity 3 to 30 gallons per hour.



FORCED DRAFT BURNER



Complete combustion system, factory assembled and tested. Includes burner (gas, oil, or combination) forced draft system, wired and tested control panel, fuel system, all in a single unit. Up to 500 boiler horsepower.

PETRO dealers are backed up with the latest and most effective sales aids, including sales training, merchandising helps, engineering assistance, and national advertising. Mail the coupon for more information.

PETRO, 3233 W. 106th Street, Cleveland 11, Ohio
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Everyday Snags

How to figure correct Cfm for summer-winter Systems

FROM A WESTCHESTER, N. Y. contractor who does much heating and cooling work:

"Starting p. 64 of your July issue is an article 'Towards greater Indoor Comfort' by J. W. Schulz.

"In a certain test home, 340 cfm circulation rate is found best for heating, while a minimum of 600 cfm is needed for summer airconditioning.

"I've noticed the same author point out in other issues that equipment installers should steer clear of the mistake of assuming the cfm rate used in winter can be the same rate used in summer, after cooling and dehumidifying cools are added to an existing forced-air system.

"But never has he given a cue as to how to figure the summer cfm rate.

"I believe I can toss out a number of great importance to many of your readers. I get great results here in Westchester, converting any forced-air heating plant to summer conditioning, simply by providing 400 cfm of circulation for every ton of refrigeration. For example, my three-ton jobs circulate air in summer at the rate of 1,200 cfm. Speed up the furnace blower on some jobs to circulate the air faster in summer—where necessary, switch to a larger motor to drive the blower.

High-water Alarm stops Overfilling of Boilers

THE SUPERINTENDENT in charge of four New York apartment houses was showing off the fancy features he had added to his four boiler rooms, each equipped with two boilers. The boilers were steel, about 60 hp each, fired by automatic rotary cup burners that used No. 6 fueloil.

"In these buildings which are not too luxurious, we use low-paid help," the super explained. "My men watching the boiler waterlines are not too reliable. Low-water controls save the boilers when the men forget to give them water. But I've had tremendous trouble because of a man's opening the valve that gives make-up water to the boilers, then going off and forgetting the valve is open. At least half a dozen times a year, we had flooded steam radiators.

"Last year I buckled down to ending that problem once and for all," the super continued proudly. "In each boiler room I installed a float switch, about six inches above the top of the gage glasses of the two boilers. Switch closes when the level of water in the steam boiler is six inches above the top of the glass. The controls I used are like those used to start and stop condensate pumps, which start up when boiler waterlines become low.

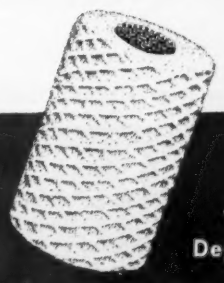
"Switches of my new controls are wired to big electric bells that can be heard a block away. So now when a man overfills a steam boiler, a bell that sounds like a burglar alarm starts ringing. That has put an end to the biggest headache I've had in my four boiler rooms," he concluded smugly.

Certainly the idea worked well for this apartment house superintendent. However, putting a few questions to

So many, many more **Fulflo Filters** *since 1937*

More FULFLO Filters than any other make are on the Oil Burners of America because so many dealers have learned that FULFLO quality stops costly service calls and assures heat-happy home owners

...And heat-happy home owners are the kind of customers your profits come from



Stop COSTLY SERVICE CALLS WITH FULFLO FILTERS

Their HONEYCOMB Filter Tubes assure true Depth Filtration and Precision Controlled Density

COMMERCIAL FILTERS CORPORATION
MELROSE 76, MASSACHUSETTS

him brought out the fact that he had never heard of an automatic water feeder for a steam boiler.

If you sell, install, or service burners, do you make certain to recommend automatic water feeders for the steam boilers you see which lack such feeders?

Relay taps Signal before Oilburner stops running

A CERTAIN SERVICEMAN has been reading articles in FUELOIL & OIL HEAT'S section on commercial-industrial equipment—about whether or not most No. 6 fueloil jobs are "sufficiently automatic."

"I don't know whether or not most big jobs are automatic enough," he comments, "because I service only domestic equipment. But I did have a service call having to do with a domestic burner that, all by itself it seems, became too automatic."

On this particular service call the housewife explained to the serviceman that her burner used to "plain start and stop" in summer, running perhaps once every two hours to provide hot water. From the kitchen, she could hear the burner equipment. The basement door was kept open in summer.

The way the burner operated until recently, he said, was there'd be a metallic snap (motor relay of the stack control clicking in, says the serviceman), then in a few seconds if she listened closely she could hear the nearly-silent flame starting to burn (job has delayed-opening oil valve in nozzle line). Perhaps five minutes later, the flame sound would stop. That's all there was to it.

"Recently the burner has been doing more than that," the puzzled housewife went on. "A minute or two before it stops, it sends up a tap-tap signal. Tells me that it's getting ready to stop. Now that's entirely unnecessary. I don't want the burner to talk to me any more than necessary. It's getting me nervous because I don't know what it will do next in the way of giving me additional signals or trying to start a conversation or something."

"This steam heating boiler has sort of a Microswitch or something in its boiler temperature control that works in summer," the serviceman explains. "That switch gets hit, when the burner should stop, by an arm fastened to a heat-sensitive bimetal helix—it's an immersion control.

"A minute or so before the burner would stop, the arm would jump and give the switch a little tap, opening it for just a fraction of a second. The motor-starting relay of the stack control would start to drop out. But the flow of juice through its solenoid coil was not off long enough for the relay to drop out entirely—or for the holding-circuit contacts to open. So there was just one loud "click" and the burner continued to run for another minute.

"I know this remedy isn't in any book. You should not lubricate a control of this type. But I got rid of the trouble in a matter of seconds by dipping a wooden matchstick in light household lubricating oil, then touching the wet end of the matchstick to the stick shaft of the boiler temperature control. Didn't give it even one

A GOOD TIP from Monarch

6 Monarch Features

1. Every Tip individually tested for Spray Angle and Capacity—your guarantee of uniformity.
2. Self-Centering internal assembly always produces a balanced spray—No lopsided fires.
3. Micro-Finish of Tip and Disc seats plus extremely close manufacturing tolerances insure accurate capacity control.
4. Will handle any domestic oils currently being supplied in the United States or Canada.
5. Tip, Disc and Locknut are made of a High Chrome Stainless Steel for maximum heat and wear resistance.
6. Five different series available for producing various spray characteristics — all developed through hundreds of fire tests in both Laboratory and Field work.

WRITE FOR CATALOG "O"

DEALERS: Buy from your Monarch Jobber

"24" & "48" Nozzle Boxes

Don't jumble your nozzles loosely in your tool box like "nuts and bolts" if you expect them to be usable. Carry them securely in these sturdy, compact steel boxes.

FLAME MIRRORS

Until you can see the flame you can't tell whether or not a burner is firing properly! With a Monarch Flame Mirror you can see to check that the flame is balanced, the electrodes properly located, and that there is no flame impingement on the firebox or air cone.

Monarch MFG. WORKS, INC.

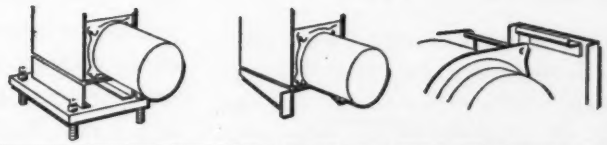
2503 E. ONTARIO ST., PHILADELPHIA 34, PA.

Canadian Sales Agents: (Except B.C.) Canadian General Filters Ltd., 2679 Danforth Ave., Toronto 13, Canada

Here's why the Arcoflame Oil Burner by AMERICAN-Standard is best for you to handle

3 Mounts . . .

pedestal, flange, and hanger mountings make the Arcoflame adaptable to any installation.

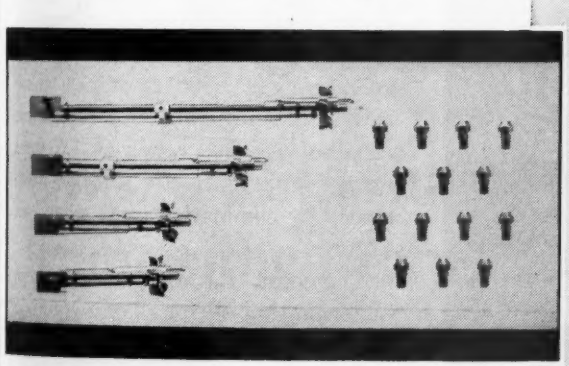


Light Weight . . .

the Arcoflame weighs only 52 pounds—one man can handle it with ease.

4 Gun Lengths, 14 Nozzles . . .

make the Arcoflame right for every job requirement.



More good reasons why the Arcoflame Oil Burner is the most versatile unit on the market today

.70 TO 3 GPH CAPACITY . . . Spans the firing range for most home heating needs.

QUIET OPERATION . . . No feedback hum because oil flow is carefully regulated.

PROVEN PERFORMANCE—NO CALL-BACKS . . . Laboratory, field and factory tested to guarantee efficient, low cost operation. Listed by Underwriters' Laboratories, Inc., for Nos. 1 and 2 fuel oils.

NEW DESIGN . . . Variable air choke rings for peak performance over entire firing range. Adjustable flame stabilizer for fast, accurate positioning of flame. Simple, positive adjustment for correctly locating nozzle.

RUGGED BLOWER HOUSING . . . Made with 14-gauge steel which surpasses U.L. requirements.

STANDARDIZED PARTS . . . Easily available parts make servicing and maintenance easy.

For more information see your distributor, or write to the AMERICAN-STANDARD PLUMBING AND HEATING DIVISION, P. O. Box 1226, Pittsburgh 30, Pennsylvania.

AMERICAN-Standard
HOT WATER HEAT

fueloil & oilheat

drop of lubricating oil, but got rid of the jerky action. Now the burner stops without signalling upstairs beforehand."

Dole's Valve regulates the Rate of water Flow

THE DOLE VALVE COMPANY some years ago brought out its "Flow Control Valve." (We prefer to call this the gpm or gallon-per-minute valve—the name "flow control valve" has been attached for many years to the loaded check valve installed over the boiler of a forced hot-water job. To use the same name for two entirely different types of valves sometimes makes for confusion and mistakes.)

The idea behind Dole's Flow Control Valve was that on many jobs opening a hot-water faucet wide would rush water through a three gallon-per-minute tankless heater at too high a rate. Rushing, say, five gallon-per-minute of water through such a heater brought cool water from a hot-water faucet, and complaints from the owner.

Because of a bit of built-in magic that really was something new under the sun when Dole brought out its Flow Control Valve, such a valve marked for 3.0 gallon-per-minute lets water through at precisely that rate whether the inlet pressure on it is 15 or 150 lbs. or anything in-between. Thus you install a 3.0 gpm valve in the cold-water inlet line of a 3.0 gpm tankless water heater and never does water flow into the coil at a rate higher than the 3.0 gpm design rate—never does water rush through the coil at a higher rate that causes hot-water faucets to produce cool water.

New Uses

New uses for these Dole Flow Control Valves or gpm valves are developing. They've been used on big housing projects to conserve both cold and hot water by limiting the gpm rate of faucets. Now they are being considered to cut installation costs, as an entirely different idea. On one big project involving some 3,000 lavatories, these valves are being considered for fixture installation—new valves of 1.0 gpm rating. The contractor aims to save money by eliminating usual stops and so forth.

The contractor is planning to have one main shut-off for all of a group of fixture outlets to facilitate such things as faucet washer changing, tending to leaks, etc. There'll be a 1.0 gpm valve for each faucet.

In the past, this contractor used stops at the fixtures to make up for differences in water pressure—such as those caused by different elevation, for example. He cracked a valve to reduce the gpm rate of a faucet. This worked with fair success, except at locations of high pressure where the stops were open ever so slightly, therefore gave wire-drawing trouble or plugged with gunk.

There's the possibility that "1.0 gpm valves" will reduce both job-installation costs and service costs, and result in greater user satisfaction—in addition to serving their first function of water conservation and ending complaints about cool water from hot-water faucets.

Sheared to Size—Less Scrap
Save Time—Cut Costs

The *right* steel makes all the difference in your oil heat combustion chambers. That's why it pays to use Ingersoll *heat-resisting stainless* steel!

It's easy to fabricate—because it has exceptional forming qualities.

It withstands high temperatures—because its analysis is correct.

It's uniform in quality—because Ingersoll specializes in producing this type of steel.

It comes to you sheared to your specified blank sizes, or multiples thereof, depending on size—so it saves you time, money and scrap.

Specify Ingersoll—and profit by the difference!

Write, wire or phone for details

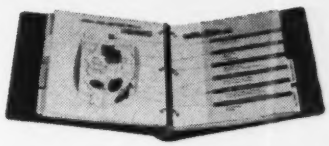
B-W BORG-WARNER

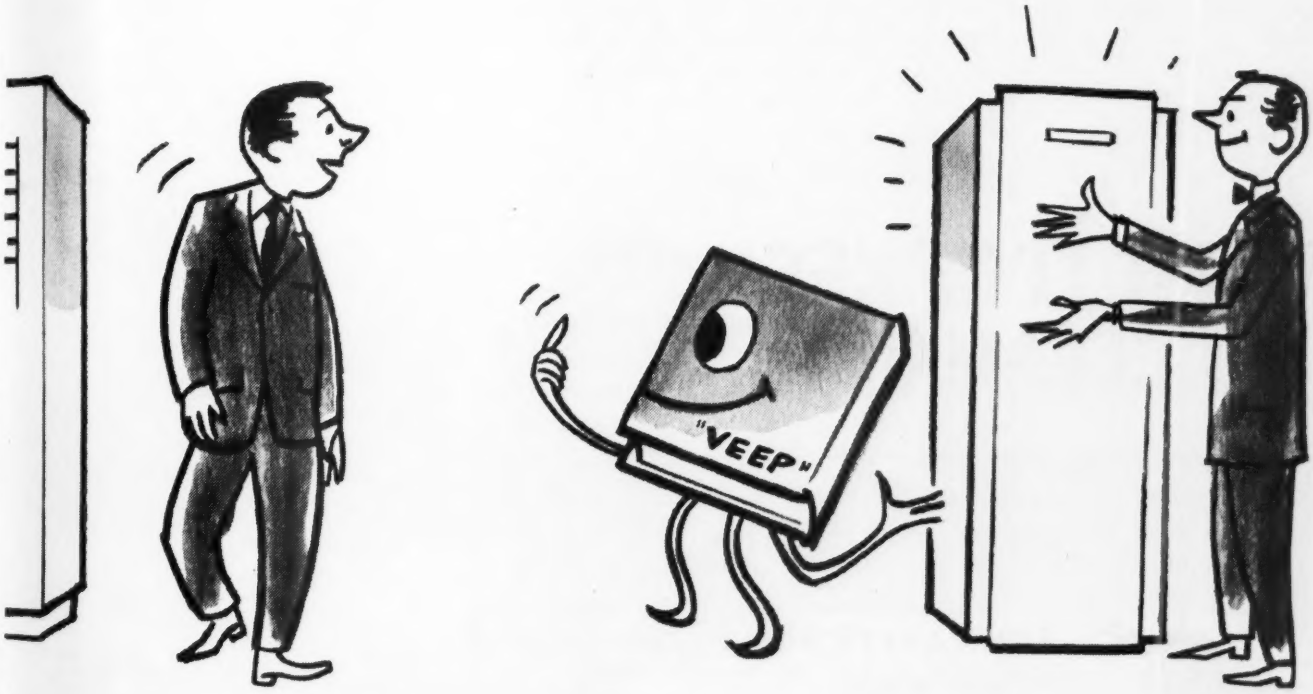
Ingersoll
STEEL DIVISION
Borg-Warner Corporation
310 S. Michigan Ave., Chicago 4, Ill.
Plant: New Castle, Indiana

Report #4

THE G-E "VEEP" IN ACTION

How new G-E "Magic Sales-Maker"--a consumer visual sales presentation, popularly called "The Veep"--helps increase sales for G-E Home Heating and Cooling Dealers





How the "VEEP" helped switch sales to me after a competitive furnace had already been bought

JACK GRODZINS, Allstate Heating and Sheet Metal Co., Inc., General Electric Dealer Chicago, Ill.

Here's what the "Veep" did for **Jack Grodzins** of Allstate Heating & Sheet Metal Co., Inc., near Chicago.

While driving through a suburb Jack noticed a new home under construction. He went in to see if the heating system had been contracted. He noticed that four register openings had been roughed in — it looked as if he was too late. But on his way out a man stopped him. He was the owner of the property.

"I explained why I had stopped," Jack writes. "I asked him if he would be interested in air conditioning. He was. I suggested that, before I gave him a price on cooling, he should see his own contractor." Turned out that the owner wasn't too pleased with his contractor's work. Jack then went through the "Veep," not only on air conditioning but also on the G-E furnace and Air-Wall* System. The owner was so impressed that he got a release from his original contract and signed with Jack for a G-E cooling unit and a G-E heating unit with Air-Wall registers.

Watch for more true sales stories like this one — in future G-E advertisements in this publication. They all teach the same lesson:—the profit-wise home heating and cooling dealer is the one who has climbed on the G-E Bandwagon. Want to join up?

FREE! Sales Secrets That You Can Use. Exciting success stories by G-E salesmen tell how they broke sales records with the aid of the "Veep." For your copy write GENERAL ELECTRIC, HOME HEATING AND COOLING DEPT. FO-56, BLOOMFIELD, N. J.

Progress Is Our Most Important Product

*REG TRADEMARK GENERAL ELECTRIC COMPANY

GENERAL ELECTRIC

Home Heating and Cooling Dept., Bloomfield, N. J.

fueloil & oilheat

Manufacturers Activities

Penn Controlorama starts Tour of 22 Eastern Cities

CONTROLORAMA, an educational road show on automatic controls for heating and airconditioning, began its eastern tour of 22 eastern and northeastern cities on April 3, according to Penn Controls, Inc., Goshen, Ind., sponsors.

Starting in Pittsburgh, the show will tour Pennsylvania, New York and New England, and wind up in Cleveland, June 4. According to R. H. Luscombe, marketing manager, this year's show gives more emphasis to airconditioning.

Biggest single feature of Controlorama is the use of "live" heating, refrigeration and air conditioning systems operating panels which simulate actual operating conditions under various types of control situations. In addition, wide screen color projection is used to supplement the story of automatic control, animated charts and giant operating controls.

Controlorama starts at 5:30 p.m., local time, in each city, with both the heating and cooling presentations combined in one evening. A dinner is served the audience and additional refreshments are provided after the program.

With intricate show equipment installed in a specially-designed truck, Penn Controls, Inc., has conducted its automatic control show in more than 100 U. S. and Canadian cities, playing before nearly 50,000 industry members involved in the usage, sale or servicing of automatically-controlled equipment.

Controlorama is sponsored in each city by leading wholesalers, Luscombe said, who in turn issue invitations to all industry people in the area. The remaining schedule of Penn's Controlorama is as follows:

Albany, N. Y., May 21; Utica, N. Y., May 23; Syracuse, N. Y., May 24; Rochester, N. Y., May 28; Buffalo, N. Y., May 29; Erie, Pa., May 31, and Cleveland, Ohio, June 4.

Co-operative Meetings held by Crane Co. for Salesmen

A SERIES of co-operative meetings aimed at helping salesmen better serve the small commercial heating field have been held in March and April by Crane Co., Chicago.

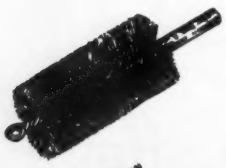
George L. Erwin, vice-president, Heating Division, said that the conferences involved briefings on heating equipment by Crane personnel plus discussions by representatives of five other manufacturers.

Representing Crane at the meetings were one of the three district heating field representatives: James Neal, Detroit; Paul Bergeron, New York; or Fred Maurer, Cleveland. Working with them were W. W. Dillon, Hoffman Specialty Co.; William Gleeson, McDonnell & Miller, Inc.; Frank Gall, Bell & Gossett Co.; John Park and Aaron Curtis, Minneapolis-Honeywell; and Jerry Johnson, Bastian-Morley Co.

Meetings were held in Boston, Philadelphia, Cleveland, Cincinnati, Buffalo and Pittsburgh.

WHAT IT TAKES TO CLEAN UP-

IT TAKES GOOD EQUIPMENT that's what it takes! You can clean the boiler or furnace in jig time—and you "clean up" yourself too!



SID HARVEY'S has what it takes

THE HARVEY VACUUM CLEANER is just what the doctor ordered.—No outside Dust Bag—Light to carry—Efficient. Trade Price only **$99.50**
De Luxe Model illustrated is more powerful @ **$111.65**

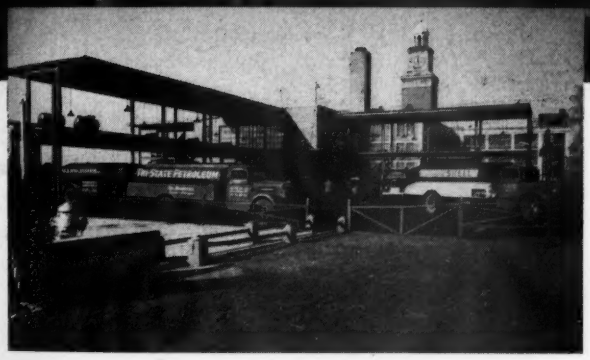
You need **GOOD BRUSHES** too—Sid Harvey's has the full line—fine wire—fiber—all kinds, including Chimney and Duct brushes.

SID HARVEY SOOT DESTROYER to get in places that brushes can't reach. This Soot Destroyer is the best for Gas or Oil fired systems — safest to use too.

Fully described in SID HARVEY'S CATALOG — write for it on your own letterhead!

42 SID HARVEY STORES FOR ON THE SPOT SERVICE

SID HARVEY INC.
VALLEY STREAM, NEW YORK



From wide windows, control clerk oversees all operations. Traffic flows smoothly through cross-shaped plant with help of loud speaker system. Centrally located in Flushing, N. Y., the wholesale plant serves hundreds of fuel oil distributors.

Now in Eleventh Year...

Neptune Remote Control Meters

prove big Savings for Island Petroleum

Because it gets trucks rolling minutes faster, the Neptune Remote Control Metering System at this Island Petroleum Corporation terminal permits loading 400 trucks a day! All operations are firmly controlled from inside the office. Each of the remote control, ticket-printing registers in the office is accurately synchronized with a rack meter outside. Automatic interlocks prevent withdrawal of product until authorized by inserting a ticket and clearing the proper register. The printed tickets save many steps in accounting and billing operations.

The plant was opened in 1945. Some of the Red Seal meters have registered more than 100 million gallons, with an excellent record for sustained accuracy and low maintenance. For details of this business-building, cost saving system, write today.

NEPTUNE METER COMPANY
19 WEST 50TH STREET • NEW YORK 20, N. Y.

neptune
RED SEAL METERS

Service, Sales Schools held by Typhoon Air Conditioning

SCHOOLS ON SERVICE, engineering and sales for distributors and servicemen have been held during the Spring by Typhoon Air Conditioning Co., Brooklyn, N. Y.

The schools covered installation of airconditioning equipment, service and operation of expansion valves and strainers, electrical hook-ups, trouble shooting, and the minimizing of service by proper selection and application.

Two heat pump schools also have been held: One at Perfection Industries in Cleveland, and another under the direction of the Typhoon Heat Pump Co., in Tampa, Fla.

Cooling Line is introduced to Heil Dealers in Milwaukee

A COOLING CONFERENCE was held recently by The Heil Co. in Milwaukee to introduce to dealers in the area the company's air-cooled line of summer airconditioners.

The Milwaukee school was held in co-operation with the Auer Steel & Furnace Supply Co. and is one of a number of regional sales meetings being held across the country.

Heil's new air-cooled line has been engineered to provide a balanced comfort system, assuring high efficiency with greater reserve cooling power. A choice of two evaporators and condenser with either centrifugal or propeller-type blowers is offered.

Among the speakers at the meeting were Fred Bittner, Roy King, Heil's chief engineer, Jack Huber, Division sales manager, and Lee Danielson.

EVERYONE AGREES!

To "make" or "break" an electrical circuit there's nothing like a mercury switch

For a complete line of mercury switch equipped controls there's only

MERCOID®

Every control manufactured by The Mercoid Corporation, whether it's a room thermostat, limit control or stack safety control is equipped with hermetically sealed mercury switches.

Write for Catalog No. 856F

VISIT OUR EXHIBIT
BOOTH No. 501
At The Oil Heat Exposition June 11-15
NEW YORK CITY COLISEUM

THE MERCOID CORPORATION
4219 BELMONT AVENUE • CHICAGO 41, ILLINOIS

Sid Harvey Booklet contains oilburner service Material

A BOOKLET, entitled "Sid Harvey's trouble-shooting Guide," has been published by Sid Harvey, Inc., Valley Stream, N. Y. It is sold at all of the 42 Sid Harvey stores or can be purchased by mail for 50¢ a copy.

The booklet contains hints on oilburner service, including field checks for stack relays, fuel units, rotary and low pressure burners, motor compressors, master controls, flame detectors, boiler water feeders, tankless heaters, Shell head information, conversion table, electrical data, control circuits and similar information.

Williamson introduces '56 Line to Dealers in Cincinnati Area

A TWO-DAY MEETING was held in Cincinnati recently by the Williamson Co., Cincinnati, O. More than 250 of the company's dealers from the area attended.

Four complete lines of oilheating equipment, plus five styles of cooling equipment were presented. Gustave Leytze, vice-president and sales manager, presided.

Marvin E. Ralston, in charge of product design, spoke on "The new Look in Heating." Hugh Calahan, vice-president, Cooling Equipment Division, discussed "The new Look in Cooling."

Other speakers were vice-presidents Paul Jensen, Dealer Sales Division, and J. Preston Field, Distributor Sales Division. C. T. Pfirrmann, advertising manager, also spoke.

Jobbers from almost every state at-

EDWIN A. JONES
Director of Engineering

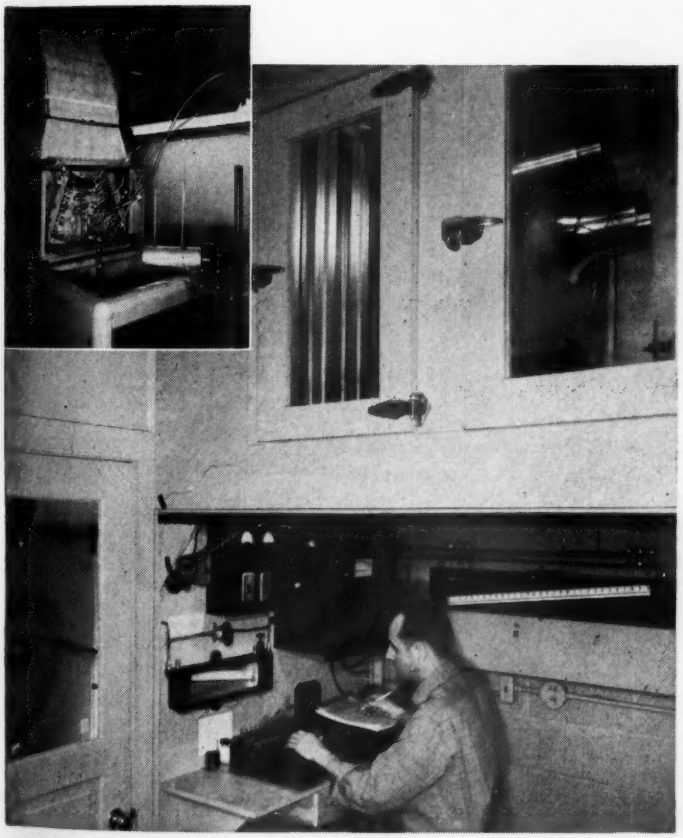
BE CONFIDENT WITH CENTURY

"Our cooling systems are tested under operating conditions . . . to do the job for which they're rated!"

NEW LABORATORY FACILITIES ASSURE ECONOMICAL, TROUBLE-FREE OPERATION . . . AND PROTECT YOUR PROFIT

Compressors, condensers, coils, and blowers simply don't perform the same under all conditions. That's why ratings based on optimistic indicated performance of components often lead to disappointment in the performance of a complete system.

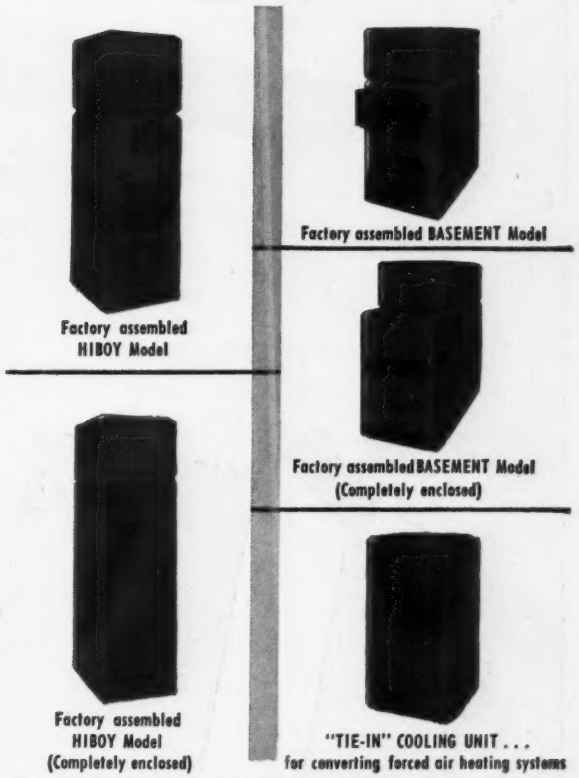
In Century's modern air conditioning lab, where atmospheric condition can be set up and accurately maintained, our engineers are not only able to rate according to ASRE standards but to determine requirements to secure satisfaction under more severe load conditions. This rigid testing under actual operating conditions is an important part in the constant development and improving of all Century products . . . is your assurance that Century Combination heating and cooling systems will perform to your satisfaction.



In the new Century Air Conditioning Laboratory, varying temperature and humidity of air entering the system is maintained in the room at the left where the combination unit is operating. Temperature, moisture content and quantity of air are measured in the wind tunnel at upper right and recorded by the operator.

The inset photo shows how thermocouples are attached to each circuit of the coil to determine its operating characteristics.

SUMMER-WINTER COMBINATION SYSTEMS
Gas or oil fired


Factory assembled BASEMENT Model
Factory assembled HIBOY Model
Factory assembled BASEMENT Model (Completely enclosed)
Factory assembled HIBOY Model (Completely enclosed)
"TIE-IN" COOLING UNIT . . . for converting forced air heating systems

PROSPECT BOOKLET AVAILABLE

"The Home Owner's Guide to Better Living through Better Heating and Cooling" is an attractive 16-page booklet written for the consumer and available for dealer use. Check the box in the coupon for your sample copy.

Century
ENGINEERING CORPORATION
CEDAR RAPIDS, IOWA FOH

Please send me information on the complete Century line.
☐ I would also like a sample copy of the prospect booklet.

Company_____
Attention_____
Address_____
City_____ State_____

tended another Williamson meeting and were told that the new line would be backed by the largest advertising and promotion program in the company's history.

Lau Blower sets 50% higher production Schedule for '56

A RECENT STATEMENT by Harold W. Faulkender, president, Lau Blower Co., Dayton, O., said that the company's 1956 production schedule will be 50% greater than in 1955 and that nearly $1 million will be spent for new tools and machinery.

Expansion has been made possible by additions to plants in Dayton, Kitchener, Ont., and Azusa, Calif.

G-E has promotion Program for motor repair Stations

A ONE YEAR promotional program on motor service and repair has been made available by General Electric Co., Schenectady, N. Y., to all franchised G-E small motor service stations.

Designed to aid the stations in familiarizing customers with available facilities for service and repair, the program includes stuffers and postcard mailers, ad mats for local advertising, stickers for letterheads, shop tags and inside window decal.

Service Facilities in eastern Areas are expanded by Wheelco

SERVICE FACILITIES in the Philadelphia, Buffalo and New York areas have been expanded by the addition of new engineers according to R. A. Schoenfeld, sales manager, Wheelco Instruments Division, Barber-Colman Co., Rockford, Ill.

John B. Moore and Edward W. Sullivan have joined the Philadelphia office. James T. Shelton is now with the Buffalo office and Walter Gilmore is now with the New York office.

Thatcher Furnace Co. sponsors airconditioning sales Meeting

LOCAL CONFERENCES in New Jersey, Washington, D. C., South Carolina and Chicago areas have been held by Thatcher Furnace Co., Garwood, N. J. Latest techniques for merchandising year-round air-conditioning were presented to dealers.

At each meeting water cooled and air-cooled airconditioners were on display to dramatize sales and technical features and to help demonstrate new servicing methods. Promotional programs and sales aids were offered and discussed.

Stuart Leigh, airconditioning sales manager, was in charge; and Wayne Mollineaux, engineering representative, conducted the meetings.

Portmar now has nationwide Network of stocking Jobbers

THE PORTMAR Boiler Co., Brooklyn, N. Y., now has warehouses in heavy distribution areas from coast to coast.

Stocking facilities for the company's residential, commercial and industrial water heaters and heating boilers are located in Chicago, Ill; Watertown, Mass.; Philadelphia, Pa.; Denver, Colo.; Seattle, Wash., and New York City.

You're in business with
HERCO PACKAGED UNITS
All factory assembled, individually fire tested and guaranteed.
A model and size for every Job.... residential or commercial, either to replace obsolete systems or just to improve present equipment.
HERCO
Left: "Stainless Heat" Warm Air Furnace—85 to 150,000 BTU. For most any home, small building. Hides away in 6-7 sq. ft. floor space. 4 types, 10 models. Factory assembled.
Right: Garden Spot Boiler Burner Unit. Low price with tankless coil. 510 to 1440 net sq. ft. hot water radiation. ASME and SBI stamped. Ready to connect. Also hot water heaters.
OIL THRIFTY
HERCO
Herco Conversion Oil Burners...a complete line of both high and low pressure...1/2 to 20 gph.
For further details, write HERCO OIL BURNER CORP., LANCASTER, PA.

How Crise Takes The Guesswork Out Of Control Performance

Every Crise Control is Exactingly *FIRE-TESTED* in This Furnace Simulator

Before shipment every Crise control must pass rigid performance tests under actual operating conditions. The device used is a Furnace Simulator—an exclusive development of Crise Research Laboratories. This equipment being accurately calibrated duplicates on-the-job conditions, and records, within very close limits, the operation of the control. With Furnace Simulator testing we can insure *and you can be sure* of dependable performance from every Crise control you buy. It's another extra value you get only in the Crise quality line of temperature controls. For full facts request bulletin and price list.

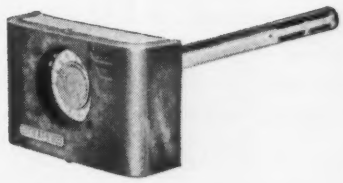
Improved MODEL FAL40

COMBINATION FAN AND LIMIT CONTROL

This compact easy-to-install control can be used wherever the limit is wired into the line voltage side of the circuits. The Model FAL 40 represents tops in quality, value and economy.

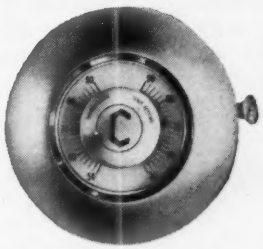
ACRO
MANUFACTURING COMPANY
CONTROLS DIVISION
COLUMBUS 16, OHIO

There's a Dependable Crise Control for Every Application



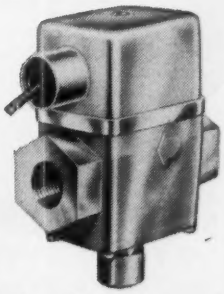
CRISE FAN AND LIMIT CONTROLS

The highest quality in fan, limit and combination controls for automatic heat. All feature clear lucite windows, easy-to-read dials.



CRISE THERMOSTATS

There's modern beauty plus the greater utility of a double scale in this new round thermostat. The removable cover can be painted to match any wall.



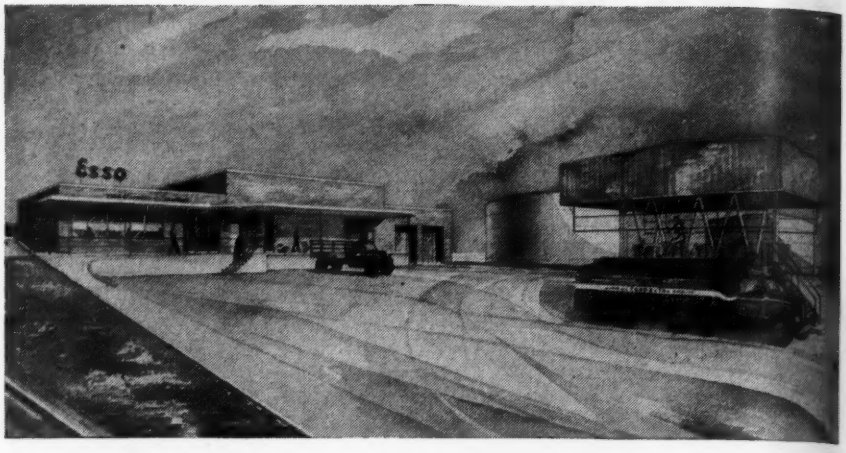
CRISE SOLENOID GAS VALVES

Built for use with all types of gases and gas-fired heating equipment. Designed for whisper-quiet operation, long life.

CRISE ZONE CONTROLS

Each Crise Zonetrol is a complete unit. No auxiliary switch, power box, or transformer is required. It's the economical way to zone heating and air conditioning systems.

Esso is building barge Plant, oil Terminal on St. Lawrence



A BARGE PLANT and storage terminal is being built by Esso Standard Oil Co., New York Division, near Ogdensburg, N. Y. It is scheduled for completion late this summer.

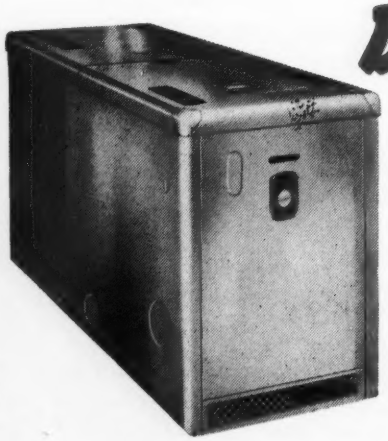
It will have a potential throughput capacity of more than 160,000 barrels and a storage capacity of 110,000 barrels. The terminal will include five storage tanks, a combination office building and warehouse and two-position loading rack.

This is the first time that Esso has operated in this area directly from its own plant. Three six-inch pipelines will connect the plant to dock facilities to be leased for the present from another company. Product will come in barges from the Albany bulk terminal.

This seal can mean a great deal to you this year. Practically every business, local and national, is participating in "Operation Home Improvement" . . . and so is the general public! Our government officials say it's going to be a "home improvement" rather than a "home building" year. This is a Big Opportunity for you — because improvements will include new heating systems. GET YOUR SHARE OF THIS BUSINESS NOW!

OPERATION '56 the year to FIX HOME IMPROVEMENT

When You Sell The Bethlehem DYNATHERM



You Sell The MOST ECONOMICAL And EFFICIENT *package unit* ON THE MARKET!

Fully Automatic

The Bethlehem DYNATHERM is as automatic as your electric refrigerator and costs little more, installed complete, than converting an old boiler!

Economical

The Whirling Flame extracts every bit of useful heat from every last drop of oil, assuring big savings on fuel bills! Savings up to 40% and even more have been reported after replacement of old oil burner (regardless of make) with the Bethlehem DYNATHERM!

Modern in Design

Designed to occupy a minimum of space, the Bethlehem DYNATHERM adds real beauty to a basement or recreation room. Completely assembled and tested at factory!

Wire or write immediately for full information . . . and get started selling this outstanding Package Unit that offers *everything* your customers have been looking for in *Healthful* Heating. BIG PROFITS FOR YOU, TOO!

BETHLEHEM FOUNDRY & MACHINE COMPANY
BETHLEHEM, PENNSYLVANIA

New St. Louis Plant to double Kennard's production Facilities

CONSTRUCTION has started on a new manufacturing plant for Kennard Corp., St. Louis, Mo. The plant will be located in St. Louis county and will be approximately double the size of the present one.

The manufacturer of airconditioning equipment will move its entire operation into the new facility. Completely airconditioned the new plant will utilize the most modern material handling equipment.

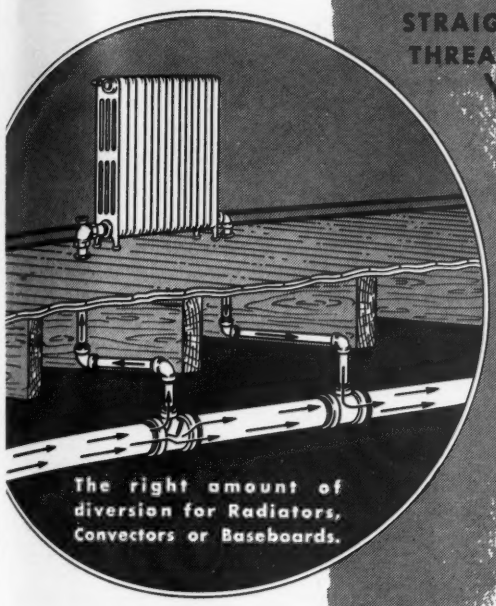
General sales Meeting held for Pacific Representatives

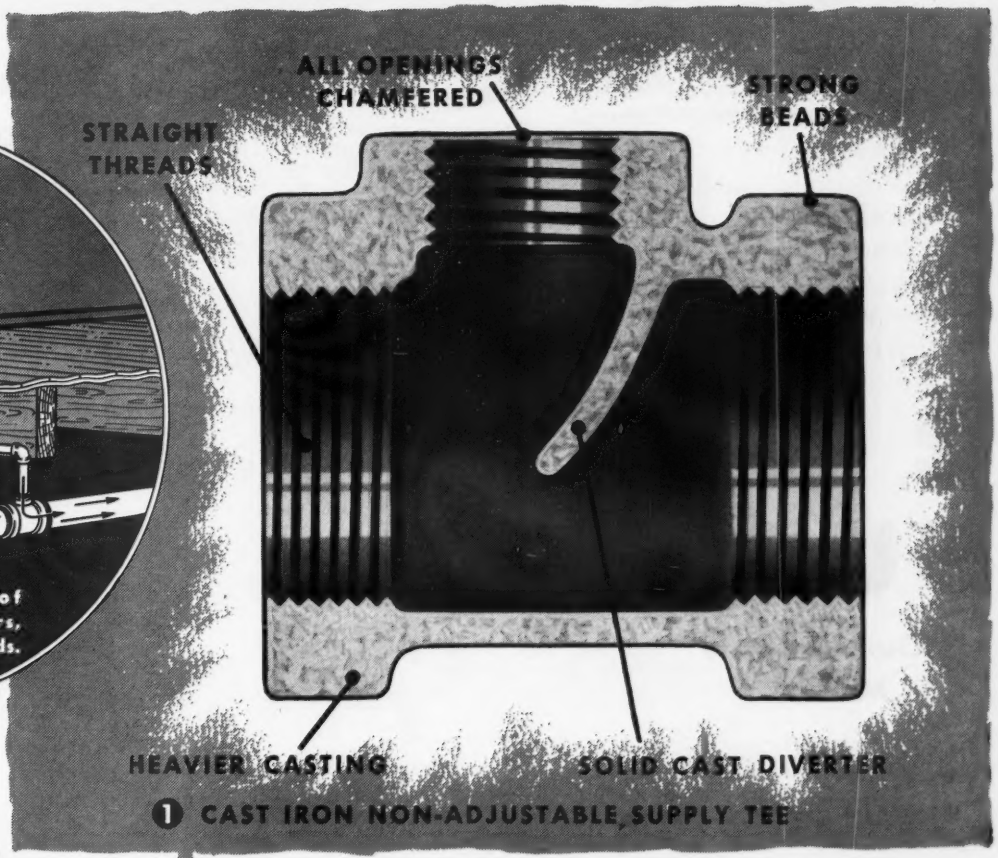
MORE THAN 70 sales offices of the Pacific Steel Boiler Division were represented at a recent general sales meeting in Johnstown, Pa. This was the first meeting held for the field representatives since the Division became a part of National-U. S. Radiator Corp.

Executives addressed each of the three groups, who after general office sessions toured the Middletown, Pa., plant where Pacific steel boilers are made.

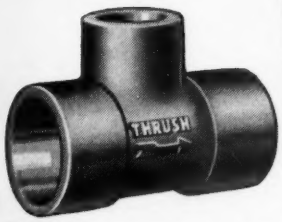
New literature was presented; engineering and research projects were covered in detail. E. J. Grady, vice-president, and H. M. Gibbs, sales manager, were in charge.

LOW COST FORCED HOT WATER HEAT!



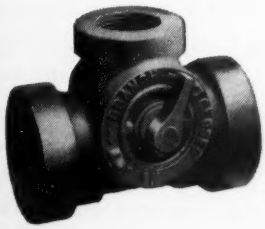


❶ CAST IRON NON-ADJUSTABLE SUPPLY TEE



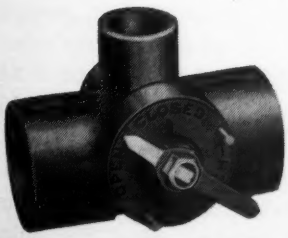
❷ **BRONZE NON-ADJUSTABLE SUPPLY TEES**

Solder fittings for one-pipe systems using copper pipe. They are accurately made in a complete range of needed sizes.



❸ **CAST-IRON ADJUSTABLE SUPPLY TEES**

for iron pipe installations. Easy to adjust, permit accurate control of flow to radiators. Simplify balancing on one-pipe systems. Complete range of sizes.



❹ **BRONZE ADJUSTABLE SUPPLY TEES** for copper pipe installations have solder connections and the same adjustable feature as the cast iron tees. Permit accurate diversion to each radiator or convector.

THRUSH

One Pipe SUPPLY TEES

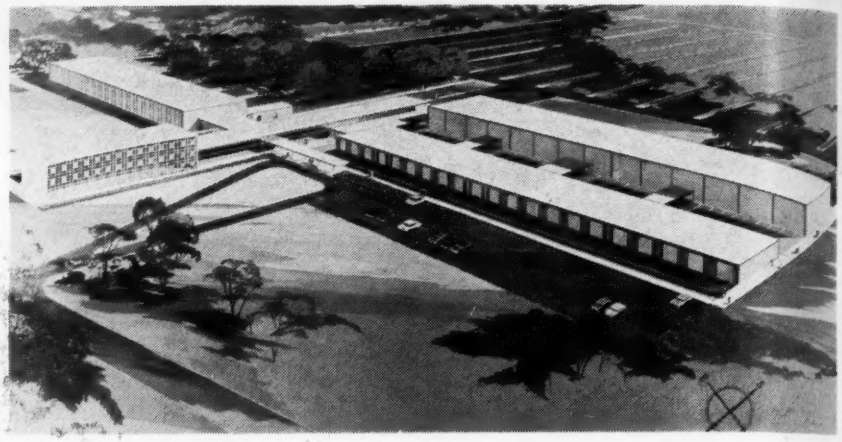
Thrush Supply Tees are low in cost but high in quality and workmanship. Precision machining assures straight, uniform piping. The cast iron tee shown above is scientifically designed to divert the right amount of water to the radiator in a one-pipe system. The diverter is an integral part of the casting.

Adjustable Supply Tees shown below at left permit perfect balancing of all radiators in a one-pipe system. The handy lever can be set easily to control the output of each radiator. The flow of water through the main is increased, not throttled.

Thrush Tees save time and labor . . . and assure a better job for your customer. See your wholesaler today or write Department C-5 for more information.

H. A. THRUSH & COMPANY
PERU, INDIANA

Carrier announces $12 Million expansion Program in Syracuse



AS A FURTHER STEP in its expansion program, Carrier Corporation, manufacturer of air conditioning, refrigeration and heating equipment, will spend $12 million during 1956 for new buildings and equipment at its Syracuse, N. Y. headquarters, according to an announcement made recently by Cloud Wampler, Chairman of the Board.

Present plans call for new administration, personnel and research and development buildings. Production facilities will be expanded and major improvements made to an existing building that will house the engineering organization of Carrier's unitary equipment division.

Total expenditures related to research and development will exceed $3 million or 25 per cent of the total.

Upon completion of the new buildings the headquarters offices of Carrier and its central engineering establishment will be moved from their present in-city location on Geddes Street to one adjacent to the main manufacturing facilities on Thompson Road just northeast of Syracuse.

The new structures will add approximately 400,000 square feet of space in the Thompson Road area for a grand total of nearly 2 million square feet. The Carrier buildings in the city will be used for a combination of production, office, service and warehousing purposes.

The largest of the new structures will be the interconnected administration and research and development buildings on either side of a central service area. This will include the main entrance, a combination auditorium and exhibit hall, dining rooms and cafeteria facilities.

The administration building will have two stories and the others only one. Construction will be of the most modern type with complete airconditioning. The Outer walls will be of light gray masonry brick with strips of black anodized aluminum around the large window areas. The auditorium and the laboratory portion of the research and development building will be windowless.

2 NEW SUPERS

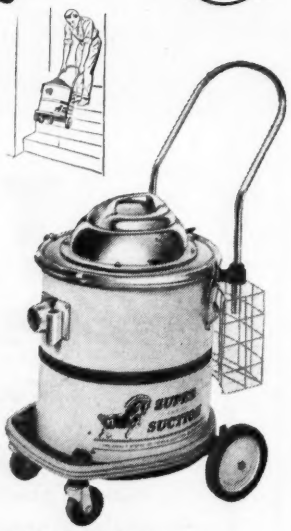
—Outstandingly Modern

Never before have furnace cleaners offered so many outstanding features of convenience and performance in oil burner cleaning as these two new Super Models LW-12 and MW-14.

Model LW-12— The only "pocket" suction cleaner. Weight 26 lbs. Low priced, compact. Minimum noise level makes possible its free use anywhere, any time.

They are light and mobile. They are low priced, compact. They are equipped with the new Super uncloggable, self cleaning internal filter.

These small cleaners can do big jobs where power is needed; difficult jobs where mobility and compactness are necessary. They are designed for easy handling and maximum efficiency. They will enable you to clean more plants in less time, increase your volume and profit from service operations, and bring you into contact with more prospects for new plants.



Model MW-14— The compact, light weight, extra mobile heavy duty suction cleaner with convenience features not found on any other cleaner. Transport handle, tool basket.

Ask your supplies dealer or write

THE NATIONAL SUPER SERVICE COMPANY

1951 N. 12th ST. TOLEDO 2, OHIO

Sales and Service in Principal Cities

In Canada: Plant Maintenance Equipment Co. Toronto, Montreal, Vancouver

"Once Over Does It"

SUPER SUCTION®

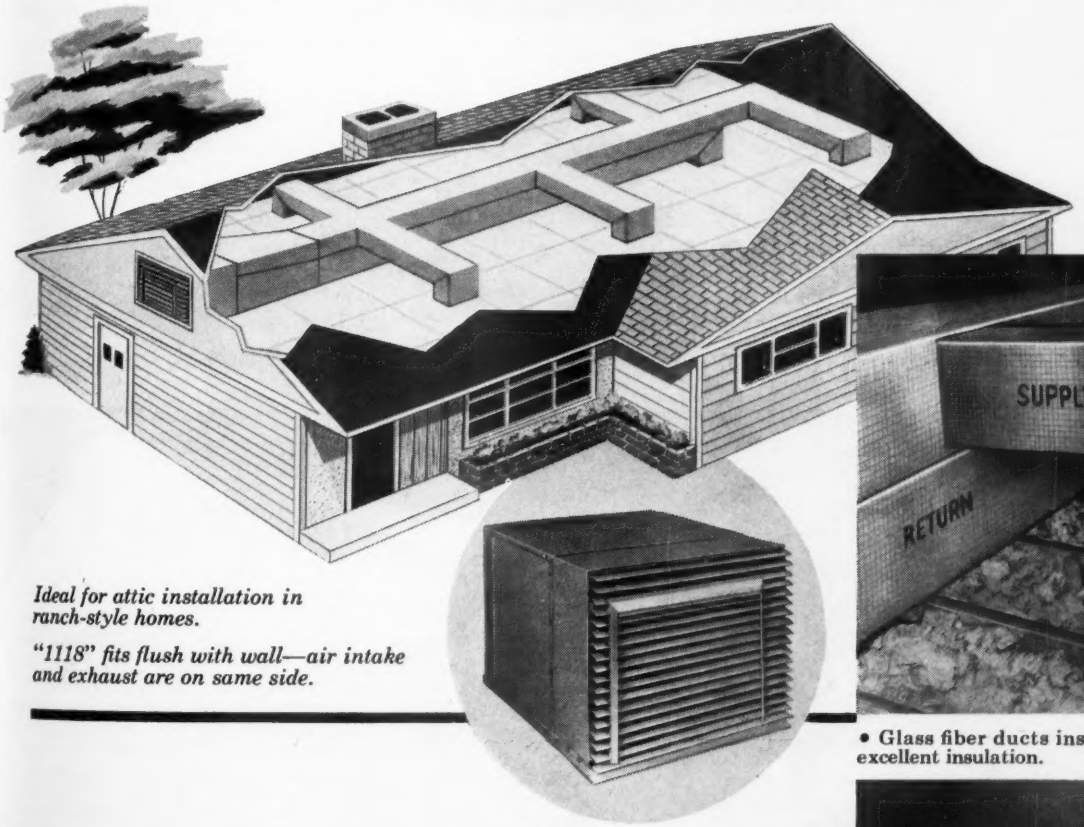
SINCE 1911

"THE DRAFT HORSE OF POWER SUCTION CLEANERS"

New Airtemp "1118"

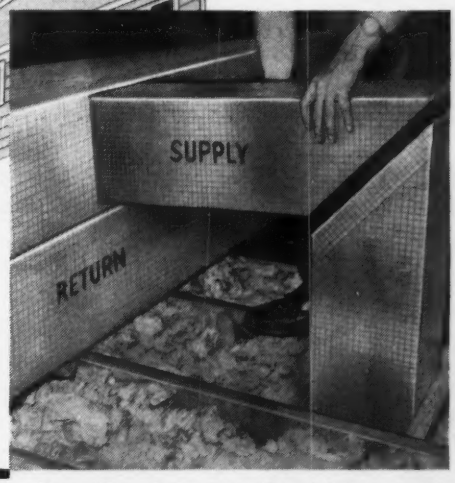
Cuts Installation Time!

- SELF-CONTAINED!
  No refrigerant connections to make
- GLASS FIBER DUCTS!
  Easy to handle, lightweight, insulated

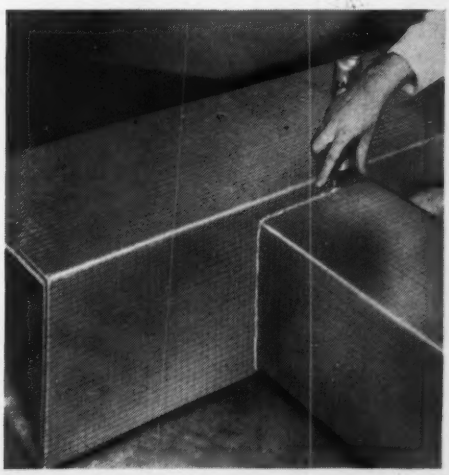


Ideal for attic installation in ranch-style homes.

"1118" fits flush with wall—air intake and exhaust are on same side.



• Glass fiber ducts install quickly, provide excellent insulation.



• Strong, lightweight ducts are easily cut and caulked.

Self-contained unit is waterless. Cools average 5-room house. No plumbing or refrigerant connection needed, just simple wiring. Installs almost anywhere in home.

Lower installation costs open up entire new market for you. Result: You'll sell people who couldn't afford air conditioning before!

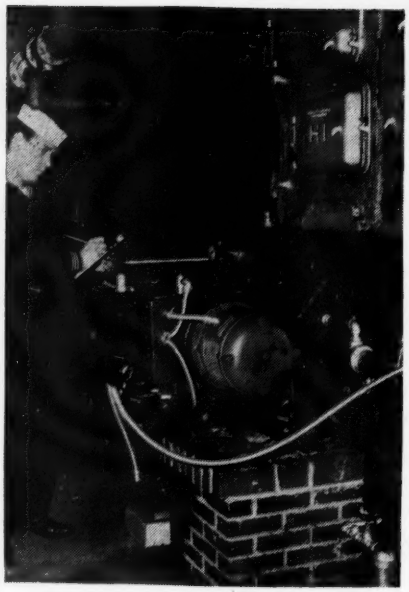
Get the facts on an Airtemp franchise today. Write to: Airtemp Division, Chrysler Corp., Dept. FOH-5, Dayton 1, Ohio.

THE *FORWARD* LOOK

Airtemp
DIVISION
CHRYSLER CORP

IN HEATING · AIR CONDITIONING FOR HOMES, BUSINESS, INDUSTRY

fueloil & oilheat



A sailor *takes a daily reading of fuel consumption for one of the 194 Cleaver Hev-E-Oil burners installed at the U. S. Naval Training Center at Bainbridge, Md. The Navy reports estimated annual savings of $641,000 expected to result from installation of these burners for central heating. This figures out to approximately $3,300 per burner. At Bainbridge the Navy provides intensive basic training to develop the "Modern Sea-going Specialist." In addition, Bainbridge service schools train more than 6,000 men each year in advanced technical skills.*

National Heater is building new plant in St. Paul, Minn.

ACCORDING TO T. J. Costello, president, National Heater Co., Inc., St. Paul, Minn., the company will begin construction of a new plant on April 1. Completion is scheduled for about July 1.

The company manufactures industrial direct-fired heaters at 2180 Cleora Ave., and leases an assembly plant. The new building will allow the firm to increase its output from 25% to 30%. Tentative plans are being made for an addition to the new plant in 1957.

Honeywell to expand foreign Operation with French Plant

CONSTRUCTION has begun by Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., on a small plant at Amiens, France, to produce oilburner controls.

This will be the fifth Honeywell plant outside the United States—others are in Canada, Scotland, The Netherlands and Japan. Charles B. Meech, manager of the International Division, said that while the Amiens plant would produce primarily for the French market, some of its output would be exported to other European countries.

The plant represents the first foreign industry to establish manufacturing operations in the city. The Amiens Chamber of Commerce presented a special medal to Harold W. Sweatt, Honeywell board chairman, commemorating the event.

Klemm Products Div. names new Eastern Representatives

NEW REPRESENTATIVES for the eastern half of the country have been named by Klemm Products Division, Klemm Automotive Products Co., Chicago, manufacturers of fueloil filters.

Cecil W. Roberts, Asheville, N. C.,

SAY J. P., HOW'D YOU EVER BUILD SUCH A TERRIFIC BUSINESS?

Well, Sam . . . . . I'll Tell You . . .

"I started in the heatin' business with a dingy little shop, crammed it full of equipment, picked out a couple pretty good units and figured I'd make a fair living. But things are different now. Just look around the office Sam—takes money to have a place like this. Why I'd still be in that same dingy little shop, sellin' folks those same old units if I hadn't run onto Armstrong. Folks know I've got the exact unit for their home, no matter what size or style it is. They know this because I tell 'em. I tell 'em I've got Armstrong's *complete line* of summer and winter air conditioners. And there's a terrific line of Armstrong heavy-duty furnaces, too, for industrial and commercial installations. Take another look around Sam . . . the shop's not crammed full of furnaces, is it! No siree, my Armstrong wholesaler takes care of all my warehousing—I just pick up the phone and the unit's on its way. Take it from me, son, Armstrong can build your business, too!"

"Say, wish I'd known this a long time ago. I'm gonna call that Armstrong wholesaler right now!"

And why don't you? Your Armstrong wholesaler can give you the whole money-making Armstrong story. Call or write today!

Yep, it sure is nice bein' an Armstrong dealer.

just look at all these advantages . . .

* A complete line of furnaces and air conditioners
* Wholesalers who do your stocking for you
* National advertising in top consumer magazines
* Prospect-catching promotional material
* Service and product meetings in the field
* Dealers heating and air conditioning schools at the factory
* And you're selling quality equipment

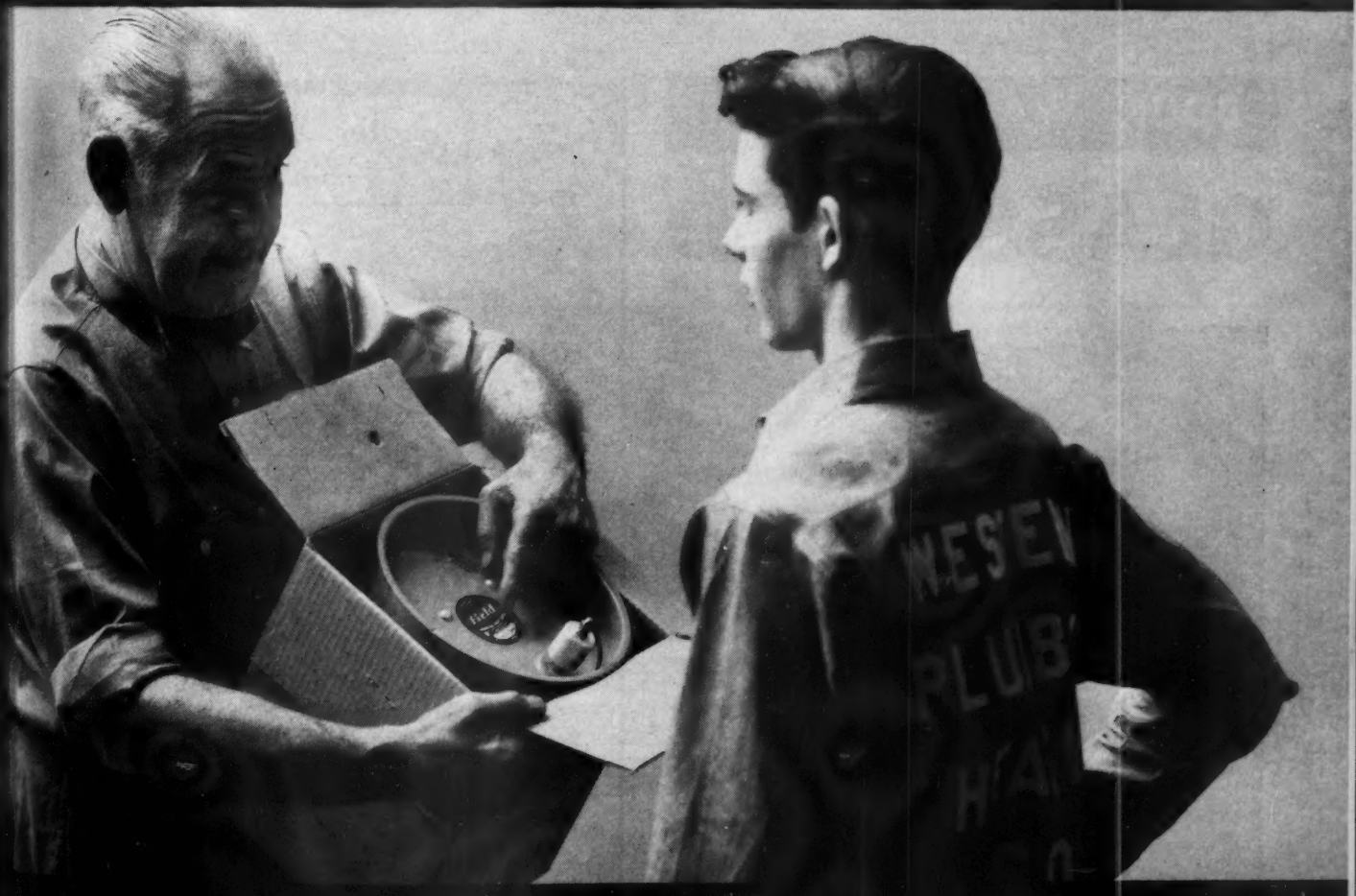
YOUR ARMSTRONG WHOLESALER ready to assist you . . all-ways

Armstrong Furnaces AND AIR CONDITIONERS COLUMBUS 8, OHIO

"I was installing these Field Controls before you were born, son"

No one knows better than a heating man's son that a problem service calls can be. So this fact is important to him: Field Controls cut down service calls. Dad has known it for a score of years; more years will prove it to his son. On such quality products and quality workmanship are built the many father and son heating firms in the business today.

See our complete new exhibit at the National Oil Heat and Air Conditioning Exposition at the New York City Coliseum, June 11-18. Booth No. 315.



You have put your faith in **Field** *more than 15,000,000 times*

FIELD CONTROL DIVISION of H. D. CONKEY & COMPANY, MENDOTA, ILLINOIS

Affiliates: CONCO BUILDING PRODUCTS, INC. • Brick, Tile, Stone CONCO MATERIALS HANDLING DIVISION • Cranes, Hoists

REPRESENTED IN CANADA BY ONTOR LABORATORY LTD., 111 TYCOS DRIVE, TORONTO 10, ONTARIO

represents the company in North and South Carolina, Georgia and eastern Tennessee. J. W. Hamilton, Tampa, Fla., has the Florida territory. Paul R. Williams, Sr., and Associates, Indianapolis, Ind., will service Kentucky and Indiana.

General Refractories to build Plant at Smithville, Ontario

GENERAL REFRACTORIES CO., Philadelphia, Pa., has announced that its subsidiary, General Refractories Co. of Canada, will build a new plant at Smithville, Ontario.

Smithville is about 20 miles from the steel center of Hamilton. The plant will manufacture fire brick and refractory specialties. Construction is slated to begin this spring.

Redmond Co. builds Plant to manufacture new Motor

A NEW PLANT in Angola, Ind., is now being completed by The Redmond Co., Inc., Oswosso, Mich., manufacturers of fractional horsepower electric motors. This plant was designed and laid out specifically to produce a new style motor that Redmond is adding to its line.

Pictured *is part of the Ballard Oil Co., Portland, Me., booth at the Better Homes Exposition held in Portland recently. The sales engineer hooked up a vertiflame fired boiler directly on the water so that the burner was in continuous operation giving a display of forced hot water radiation system which ran around the back of the booth. This was made possible by direct piping into the boiler coil.*

The burner was firing at the rate of a gallon an hour. A blue glass was placed over the door so that the flame could be seen. Esso had its catalytic process oil refinery display also set up in the booth.

St. Louis supply Firms merge; to operate on wholesale Basis

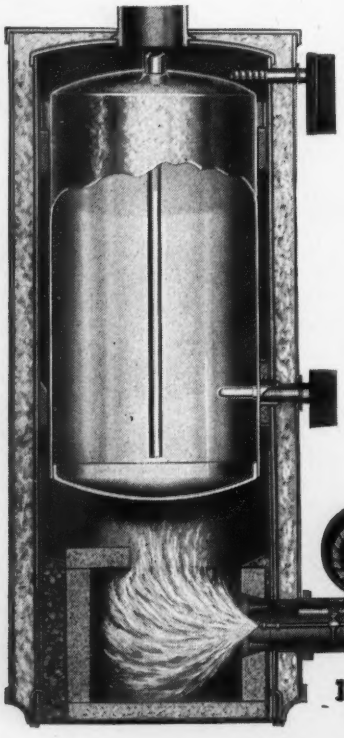
TWO SUPPLY FIRMS in St. Louis have recently merged and announced that future operations will be conducted on a wholesale basis only.

The two companies are Independent Plumbing and Heating Supply Co. and Modern Supply Co. General offices of Independent have been moved to the Modern Supply Co. building at 3800 Market St.

Among the lines carried by Independent are the following: National-U. S. Radiator Co., International, Hotstream, and U. S. Machine.

BOCK WATER HEATER

GLASS LINED



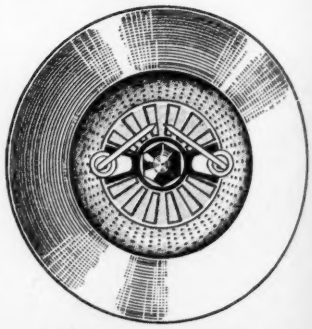
- Furnished with glass-lined tanks in either standard or A.S.M.E. weight.
- Sectional combustion chamber. Taken in and out of inspection door.
- Use No. 2 oil, same as in your furnace.
- Wide public acceptance, 26 years making good oil water heaters.
- Also a complete line of large heavy-duty oil or gas-fired water heaters. For schools, apartments, and public buildings.

BOCK CORP.

110 S. DICKINSON ST.
MADISON 4, WIS.

I give my customers the BEST!

Correct PULSATION and POOR CO² with a



BOSTON COMBUSTION HEAD

Adaptable to any pressure atomizing burner. .75 to 3.0 G.P.H. This precision head is now available. Adjustable air shutters permit obtaining high efficiency sunflower flame or efficient non-pulsating flame.

Comes complete—easily installed.

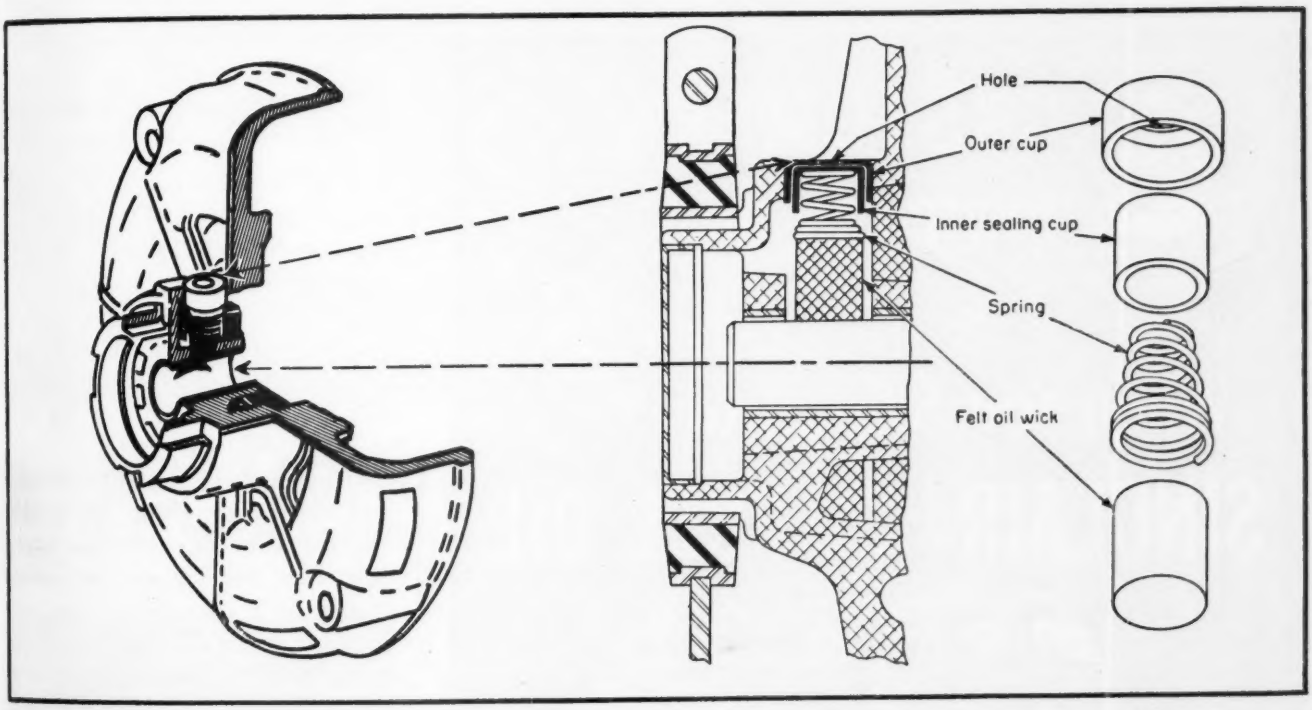
A PROFIT MAKER

Write for literature and instruction sheet.

BOSTON MACHINE WORKS COMPANY
Oil Heating Supplies Division, 7-17 Willow St., Lynn, Mass.

Emerson-Electric engineering highlights

New, improved motor oiler assures positive, cleaner lubrication



A new-style oiler is a special feature included on many Emerson-Electric die-cast end-shield motors. It assures positive internal lubricating—also provides an added convenience in motor lubrication.

As shown in the illustration, the new oiler consists of three basic components—spring, retaining cup and oil-well cap. The spring performs two important functions:

First, it presses against a felt tongue which is part of the felt packing in the oil reservoir—the tongue extends through an opening in the sleeve bearing and makes direct contact with the shaft. By maintaining pressure against the tongue, proper lubrication is assured under all operating conditions.

Second, the spring holds the retaining cup in place against the oil-well cap; this prevents dirt and foreign matter from entering through the opening in the cap.

In addition, lubrication is simplified since pressure easily depresses the retaining cup, permitting oil to flow readily into the felt packing.

This is another of many Emerson Electric "highlight" engineering features that benefit designers and manufacturers of motor-driven appliances.

Call on Emerson-Electric motor-drive specialists

Recognized as a leader in equipment-drive motors for more than 60 years, Emerson-Electric specialists offer wide experience in all phases of motor-driven applications. You'll find their help valuable, whether you're designing or re-designing for performance and sales. Write for bulletin M-32. THE EMERSON ELECTRIC MFG. CO., ST. LOUIS 21, MISSOURI.

Emerson-Electric of St. Louis • Since 1890

BRANCHES: NEW YORK 7, N. Y., 11 Park Place • CHICAGO 23, ILL., 1623 S. Pulaski Road • SYRACUSE, N. Y., 209 Oakley Drive
PHILADELPHIA (Secane), PA., 868 Quince Lane • DETROIT 7, MICH., 1375 E. Jefferson Ave. • CLEVELAND 16, OHIO, 1580 Rockland Ave.
LOS ANGELES 42, CALIF., 5415 York Blvd. • DAVENPORT, IOWA, 617 Brady Street • CINCINNATI 11, OHIO, 2917 Ratterman Ave.

Readers' Problems

Q. Working as a serviceman for two years now, I would like to know where I can get some information on servicing wall flame rotary burners. I know FUELOIL & OIL HEAT *puts out a book, but I am wondering about going to a school within reasonable distance (closer than Massachusetts or New York).*

I do only domestic work and I have trouble with a ———— oilburner. I do a summer clean-up on the furnace and when I start it, it won't ignite. I have to cut the air way down and then the flame burns dirty. If I leave the air setting where it was, it blows out the flame. Yet before checking the burner ignited on every start-up.

None of these burners fires over 1.50 gph. I have tried different kinds of nozzles in them but nothing helps.

I also would like to know what would make an oilburner smell on the outside of the house. I have complaints about people not being able to leave their windows open because of the smell of oil. I have noticed this at a few homes too when I come up the stairs I can smell fueloil on the outside of the house.

Also what can I use to pack a clean-out rod of an oilburner hot-water heater? Thank you.

G. H. E., Menasha, Wis.

A. We know of no school at which you could specialize in wall flame rotary burners, located within a few hundred miles of you. Write to manufacturers of such burners, asking them if you can obtain the installation and service manuals you need, and can attend instruction sessions at the factories.

From your letter, we gather the idea that the burners giving you trouble may not be of the wall flame rotary type. First you say you are having trouble with a ———— oilburner. But there is no wall flame rotary burner that bears the name you give. Next you say you have tried different nozzles. But a wall flame rotary burner does not use an atomizing nozzle. Finally you indicate these troublesome furnaces use, you think, ———— oilburners. But this line of oilburners you name does not include wall flame rotaries; it includes only pressure burners.

Whatever type of burner is giving you the trouble, from what you say we cannot figure out what you do wrong in cleaning the furnaces, and why the burners therefore do not start up after your clean-up jobs. We've never before heard of a serviceman having this trouble.

The fueloil smell you describe is the result of incomplete combustion, and of products of combustion dropping from the tops of chimneys. Where your gun-type burners give this

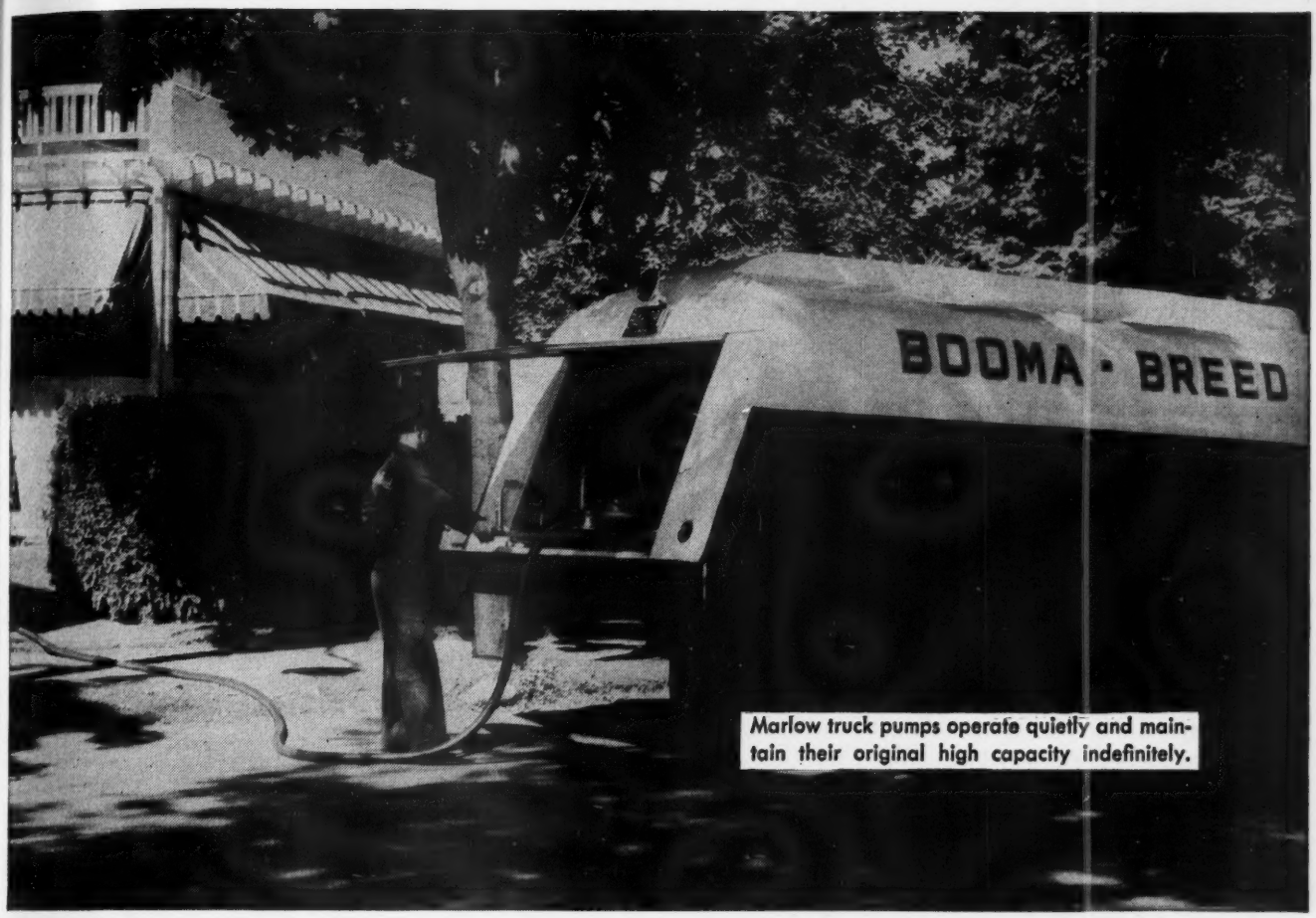
(Please turn to page 144)

All fuel oils are *not* alike – and today's fuel oil users know it. Only Sinclair Anti-Rust Fuel Oil gives the extra protection of RD-119® – *at no extra cost!*

Used regularly, this top-quality fuel oil protects against rust-clogged filters and burner nozzles – assuring greater customer satisfaction – and fewer service calls. Your benefit: good-will that comes from pleased customers, and greater profit that comes from lower service costs. For more customers, and more good-will, switch to Sinclair Anti-Rust Fuel Oil today. For more information, write to Sinclair Refining Company, 600 Fifth Avenue, New York 20, N.Y.

SINCLAIR ANTI-RUST FUEL OIL

With RD-119®–So *Different it's Patented!*

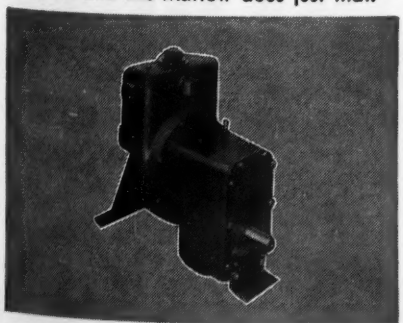


Marlow truck pumps operate quietly and maintain their original high capacity indefinitely.

High Capacity Pumps Speed Oil Delivery

MODERN EQUIPMENT . . . DRIVER INCENTIVES . . . CUT DELIVERY COSTS 10%
FOR BOOMA-BREED, INC., LYNN, MASSACHUSETTS

Says top driver, John Cosentino, "To make money, you've got to get the oil out of the truck fast and this Marlow does just that."



With this Marlow centrifugal pump, an impeller rotates freely in the liquid, and eliminates maintenance caused by wearing surfaces, shock loads, and vibrations.

DELIVERING seven million gallons of fuel oil annually with eleven trucks keep men and trucks on the go. To accomplish this, Roland Booma and William Breed operate a unique driver incentive plan and supply their men with the best equipment obtainable.

Booma-Breed's new truck, with a Marlow pump, is now being tested by their top driver, John Cosentino. John is very conscious of the pump on his truck since this is the part that moves the oil. He generally operates the pump at 110 pounds pressure and delivers 80 gallons per minute through 125 feet of 1¼" hose. In some cases, he has run as high as 160 pounds with a delivery rate of 120 gallons per minute.

Ronald Kinville, in charge of maintenance, is pleased with the vibrationless operation of the pump. He says there is noticeably less strain on the engine while the pump is operating and less shock-load on gauges, meter, and piping when the nozzle is opened and closed. John Stevens, their Oil Department Manager, thinks the pump will have better customer acceptance because of its quiet operation. At the same time he believes that it will allow them to distribute oil at less cost from the standpoint of truck maintenance, trucks in operation, and drivers required.

If you are interested in reduced delivery costs, investigate this modern method of handling fuel oil. Complete information on Marlow pumps and the name of your nearest dealer can be obtained simply by writing Marlow Pumps, Midland Park, N. J. Ask for Bulletin PM-06.

Marlow PUMPS

5-269

MARLOW PUMPS
Division of Bell & Gossett Company
MIDLAND PARK, NEW JERSEY
Morton Grove, Illinois **Longview, Texas**
In Canada: PUMPS & SOFTENERS LTD., LONDON, ONTARIO

Service sustains the Industry

(*Begins on page 61*)

it by the percentages stated to arrive at normal figure for your size town.

Following this, we find in TABLE 14 the hourly wage rates of both installation and servicemen in all sections of the country and in the three sizes of cities. Notice at the bottom of the table that the wage rate for skilled installation men went up six cents during the year and skilled servicemen went up 13 cents, to more or less equalize the pay for the two types.

One explanation is in order here because of some misunderstanding of a similar table last year. Where we show the high and low rates we do not mean the highest paying dealer gave us the upper figure and the lowest paying dealer gave us the low one. Instead each dealer told us what he pays his highest grade men and his lowest. The differences are based on degree of skill. Thus, the figures in the table represent the average of all reporting dealers in each section showing both their best and cheapest men. In the relatively few instances where they had union shops and there was one rate of pay throughout, we used the figure in both the high and low averages.

We find in TABLE 15 our annual summary of the types of heating systems that got new oilheating installations in 1955. The only real change from the previous year was that forced warm air picked up sharply at the expense of gravity warm air. The separation between wet heat and warm air held the same ratio of 43 to 57. Oilheating has done a lot to sustain the boiler market while the lower priced warm air equipment made drastic inroads into gas and coal heating. One reason for this has been the fact that with boiler heating the user gets his domestic hot water supply from the same unit. With warm air he nearly always has a separate unit, and too frequently such a water heater uses gas or electricity.

This point is brought out in TABLE 16. Among all of our 1955 new installations we saved the domestic hot water business on 34% that went with boilers, and another 3% with separate burners. In the last column of the table we find that 6% of our installations used oil in the winter and other fuels in the summer. Gas and electric fuels got 57% of the water heating on our oil-fired jobs. As a coincidence this is the same percentage as were warm air systems.

There is a little variation in TABLE 17 this year where we see how oilheating dealers handle ductwork. We show the per cent that use prefabricated ducts, those that sub-contract their sheet metal work, and those that operate their own sheet metal shops. The total is more than 100% because dealers often use two methods.

It's the last column in this table that is new. We saw that 28% of oilheating dealers have their own sheet metal shops, but since these are larger than the average run of dealers they did 40% of the total warm air jobs done by the whole reporting group. That is the more significant figure of the two, obviously, because it is the true measure of the oilheating dealer with his own shop in warm air.

In TABLE 18 we show the kind of transportation servicemen use to get around the territory. This table is better than the one we had last year. In the previous study we asked only about company trucks and employee cars, overlooking the fact that company owned passenger cars are a large factor in service work. That caused confusion last year, but with three columns the figures should be better.

We were surprised to learn that less than a fourth of the companies have the servicemen use their own cars. We had thought the ratio would be higher, but with the practice hardly used in the Pacific Northwest the overall figure is probably about right. In getting the number of trucks used by servicemen these probably would be the same trucks used to make installations in the smaller companies, but they are used primarily for service.

(*Please turn to page 124*)

TABLE 15

Type of Heating Systems in 1955 Oilfired Installations

	Steam	*Hot Water*	*Forced Warm Air*	*Gravity Warm Air*
New England	21%	36%	33%	10%
Middle Atlantic	29	36	28	7
South Atlantic	9	12	76	3
Midwest	7	12	72	9
Pacific Northwest	..	2	97	1
1955—ALL SECTIONS	18	25	50	7
1954—ALL SECTIONS	18	25	44	13

TABLE 16

Oil gets two-fifths of Water Heating in 1955 New Installations

	Summer-Winter Hookup On Boiler	SEPARATE BURNER *Vaporizing Power*		—OTHER FUEL— *Gas*	*Electric*	*Oil Winter Other Methods In Summer*
New England	56%	1%	1%	17%	18%	7%
Middle Atlantic	56	1	4	20	10	9
South Atlantic	5	3	..	12	80	..
Midwest	5	2	1	64	27	1
Pacific Northwest	1	..	..	..	99	..
ALL SECTIONS	34	1	2	29	28	6

TABLE 18

Service Department Transportation

	—PERCENT OF CO'S USING— *Company Trucks*	*Company Cars*	*Employee Cars*
New Eng.	84	34	32
Mid-Atl.	92	58	26
So. Atl.	93	43	36
Midwest	95	51	22
Pac. N.W.	85	51	..
ALL SEC.	91	51	24

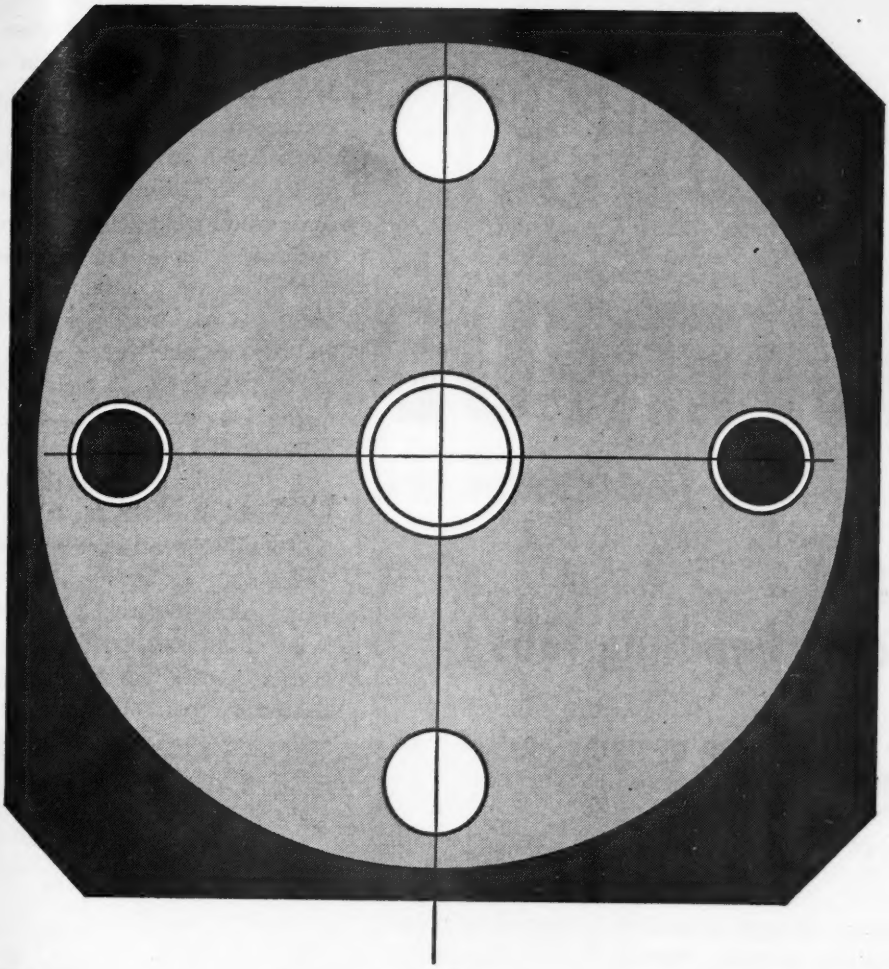
Indicated Totals

Company trucks	19,163
Company cars	7,576
Employee cars	4,025
Combined	30,764

TABLE 17

How Oilheating Dealers Handle Sheet Metal Work

	—PERCENT OF DEALERS— *Use Prefab. Ducts*	*Sub-Contract*	*Operate Own Shop*	*Shop Owners Share of Total Jobs*
New England	35%	56%	25%	34%
Middle Atlantic	46	78	17	24
South Atlantic	73	40	42	58
Midwest	41	45	36	47
Pacific Northwest	14	50	50	89
ALL SECTIONS	42	61	28	40
All Large Cities	34	65	21	..
Medium Cities	48	62	33	..
Small Cities	55	47	38	..



Coming... the Greatest Advance in Oil Heating since 1932!

• For complete details see the June issue of this magazine or visit the display of the Webster Electric Company in Booths 201-203 at the 21st National Oil Heat and Airconditioning Exposition; Coliseum, New York, New York; June 11-15

fueloil & oilheat

put
the
POWERFUL
motorpump
on your liquid handling jobs!

Keep oil on the move—keep pumping costs down —keep payloads speeding to your customers!

There's a lot of power in these rugged and compact Motorpumps.

You'll find straight centrifugal as well as self-priming types to handle all your oil moving needs—faster and more profitably. Sizes from ¼ hp to 75 hp. Capacities range from 5 to 2800 gpm, and heads to 650 feet. They're designed to stay on the job for years with minimum maintenance.

Find out more about Motorpumps and how their power and efficiency will improve your profit picture. Write today for the latest catalog on Motorpumps for handling petroleum products or see your nearest Ingersoll-Rand oil equipment jobber.

9-239A

MOTORPUMP

Ingersoll-Rand
11 Broadway, New York 4, N.Y.

When servicemen use their own cars we find that two-thirds of the dealers pay them by the mile, and the average rate across the board is 7.9 cents. The high and low range is from five cents to 12 cents, but the majority run around eight cents. Where they don't use a mileage rate for paying the men there are a dozen other plans: sometimes they just pay for the gas and oil; sometimes they lease the man's car at a specific price such as $40 per month plus gas and oil. Some companies have a mileage guarantee, typically 500 miles a month at eight cents. In general, however, the fact is pretty well established that it costs 8 cents to drive an automobile.

In a study of this kind you get quite a lot of information from the cooperating dealers that does not get into the initial report. The reason is that it takes several individuals and a good many days to properly analyze the information we do use. In addition, we get a lot of background material from these fine dealers, and we make use of it in our general thinking in the months ahead. To the men who cooperated in making possible this analysis for the benefit of service management throughout the industry, we are very thankful.

❖

Wisconsin OHI hears Reports, makes Plans at March meeting

THE MARCH meeting of the Oil-Heat Institute of Wisconsin, Milwaukee, Wis., was devoted to reports on the oilheating advertising campaign the group is conducting again this year. This advertising effort was highlighted on April 22 with the appearance in the *Sunday Milwaukee Sentinel* of a special oilheating section. The Institute listed all members in a full page ad, with manufacturers and dealers placing their own insertions in the section, whose entire content was devoted to oilheating.

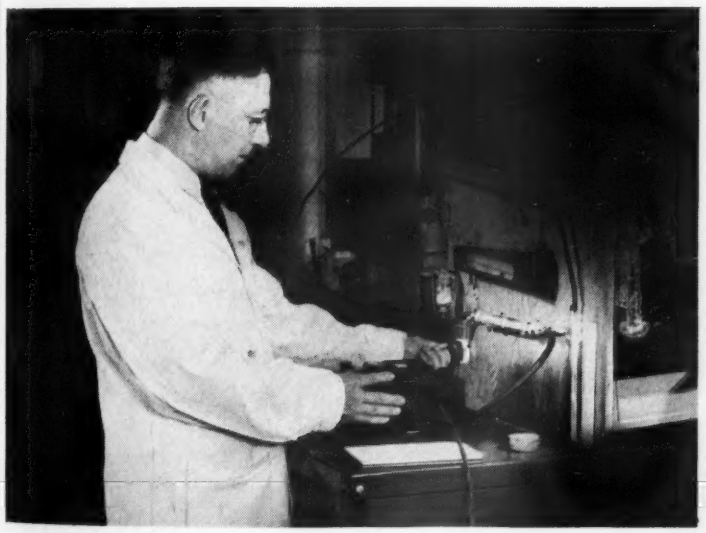
Other matters discussed at the March meeting included a proposal for guaranteed oilburner installations, backed by a $1 million insurance policy, and a presentation of plans for the 12th annual industry and rally being held May 10 and 11.

Why

SHELL FURNACE OIL

IS KNOWN AS

"the fuel that won't clog filter screens"



In 1929 Shell opened the industry's first laboratory devoted exclusively to heating oil research. One of the most important developments to come out of this laboratory was the answer to an industry-wide problem—filter screen clogging. As a result Shell Furnace Oil became known as "the fuel that won't clog filter screens."

Independent oil marketers know that this is true, and that their service costs have been substantially reduced because of this dependable fuel. Their customers enjoy the benefits of clean combustion and clean filter screens, resulting in fewer service interruptions.

Research is continuous at Shell!

Research in the Shell Burner Laboratory at Sewaren, New Jersey, is constantly striving to make this fine fuel even better. So the Shell Furnace Oil delivered today *is* better than in past years. You can sell it with pride and every confidence . . . and reduce *your* service costs as well.

Get the facts about Shell Furnace Oil from the Shell Representative in your area.

SHELL OIL COMPANY

SHELL

IT'S NEW...IT'S HERE
E 1/4 1/2 3/4 F
STOP FILLING
Sentry's
AT-A-GLANCE
ODF* TANK GAUGE
gives exact reading level
of oil in tank
at point of delivery!
Located outside of building at fill pipe, this new, easy-to-read fraction calibrated, pressure-tight gauge shows the exact level of oil in tank at all times! Saves costly, time consuming trips to basement and unnecessary unreeling of hose . . . Permits delivery without disturbing customer and eliminates spills as there is a "stop filling" indicator on calibration. Made of weather-proof materials throughout with thermometer indicator securely encased in plastic dome that will not fog or cloud up. No gears, cams, magnets, tapes or intricate mechanisms to get out of order. Write for complete information and low cost unit prices on this modern "delivery point" remote reading gauge today.
"Seeing is believing"
"No more blind fills for me"
"No more spills with fills"
*OIL DEALERS' FRIEND
TYPE ODF-1½ Fits 1½" tank opening
TYPE ODF-2 Fits 2" tank opening.
TELLS WHEN OIL IS NEEDED
. . . HOW MUCH IS NEEDED
. . . WHEN TO STOP FILLING
● Weather-tight plastic dome calibration assembly.
● Easy-to-read indicator.
● Shows exact reading level at all times.
● Made of quality oil, weather and corrosive resistant materials.
● Durable, heavy-duty construction.
● No complicated mechanism.
● Simple and quick to install.
● Lowest cost remote reading gauge on market.
On guard—24 hours a day
KRUEGER Sentry GAUGES
GREEN BAY • WISCONSIN

New Products

Each New Products item has an identifying number. If you want more information on any equipment described here send the coupon on page 142 to FUELOIL & OIL HEAT, *2 West 45 St., New York 36, N. Y., and identify the product by circling its number on the coupon.*

OPW tank Whistle is audible fill Signal for fueloil storage Tanks

OPW TANK WHISTLE is an audible fill signal for fueloil storage tanks which sounds while tank is being filled and stops automatically when liquid level reaches bottom of tube. All OPW tank whistle bodies are made of high quality cadmium plated semi-steel, with whistle poppet of lead or cadmium plated steel. Whistle and whistle tube is aluminum, packing rings are of Buna-H Hy-car material, pressure ring nuts are cadmium plated steel stampings.

Three styles are offered: No. 7A (illustrated) with threaded tip for new tank installations; No. 7C with compression end for old tank installations; No. 7U with union end for new and old tank installations.

Made by: OPW Corp., 2735 Colerain Ave., Cincinnati 25, Ohio.

Circle E1 on coupon, page 142

Maid-O'-Mist adds No. 37 Auto-Vent and No. 16 adapter Units to its Line

ADDITION of the No. 37 Auto-Vent and the No. 16 adapter unit to its line has been announced by Maid-O'-Mist. The No. 37 Auto-Vent rounds out the company's line of vent valves for hot water heating or chilled water cooling installations. The No. 37 is designed for horizontal mounting with ⅛" IP vertical male bottom connection. Usable with combination heating-cooling convectors, baseboard radiation or radiant panels where space is limited. For air pressures up to 50 lbs.; size is 3" by 2½".

The No. 16 balancing valve adapter unit installs in a cast-brass tee to complete an angle balancing valve. In common with other similar Maid-O'-Mist units, the No.

She bought **41,197,349** in Five Years!

But! did little, if anything to modernize her heating and hot water supply

Housewives need more hot water to serve these 41,197,349 new appliances.

You can give them this extra hot water and modernize their heating systems at the same time!

We can help you get your share of modernization. Write for our plan — costs you nothing.

BETTER HEATING Taco BETTER WITH TACO

TACO HEATERS, INCORPORATED • 1160 CRANSTON STREET • CRANSTON 9, R. I.

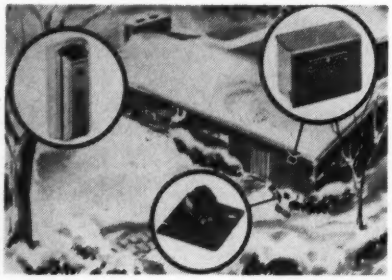
16 does not reduce pipe diameter, thus restricts water flow only for balancing.

Made by: Maid-O'-Mist, Inc., 3217 N. Pulaski Rd., Chicago 41, Ill.

Circle E2 on coupon, page 142

General Electric introduces outdoor control System for residential Heating

THE 3AHK2 OUTDOOR CONTROL SYSTEM announced by General Electric consists of a transformer, a room thermostat and an outdoor temperature compensator. It functions to automatically raise the control point of the room thermostat as the outdoor temperature decreases and eliminates the need for increasing the dial setting as the weather gets colder.



The outdoor thermostat contains a "thermistor" mounted on a terminal board inside a steel case. As the outdoor temperature decreases the resistance of the "thermistor" material increases, causing a reduction in current through the circuit into which it is connected. A compensating resistor mounted in back of the thermostat bimetal blade is connected in series with a 25-volt transformer and the outdoor thermostat. As current flows through this circuit, the compensating resistor produces artificial heat inside the room thermostat.

As the outside temperature goes down, the heat given off by this compensating resistor decreases permitting the room thermostat to sense that the room is cooler. The result is that it starts the heating system to increase the room temperature and compensate for heat loss through the walls of the house while the outside temperature is dropping.

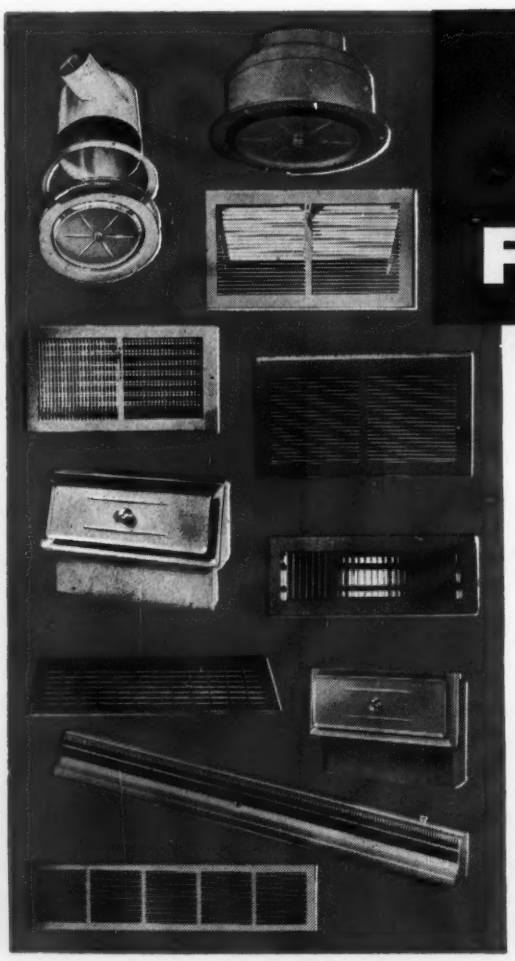
Made by: General Electric Co., Appliance Control Dept., Wall St., Morrison, Ill.

Circle E3 on coupon, page 142

RCA transistorized Microphone for two-way, mobile radio Use

THE FIRST transistorized microphone for use in two-way, mobile radio systems has been developed by RCA. Interchangeable with conventional carbon microphones, the transistorized model features a reluctance-type microphone mechanism and a built-in transistor preamplifier.

This new CX-50 microphone's built-in transistor amplifier is powered by voltage normally supplied to a carbon microphone so that it plugs directly into the mobile radio equipment without additional installation requirements or



LOOK NO FARTHER

Char-Gale has them all!

DIFFUSERS—REGISTERS

in styles and sizes for every installation

One source for all the registers you need . . . that's Char-Gale! Perimeter installations . . . conventional installations . . . forced air or gravity . . . you name it . . . and Char-Gale has it. That's because Char-Gale manufactures a complete line of floor diffusers, baseboard diffusers, ceiling diffusers, wall diffusers and out of the wall diffusers, as well as conventional registers and vents. You enjoy the benefits and convenience of Char-Gale's packaging program, too!

Char-Gale also manufactures a complete line of galvanized and aluminum pipes and fittings for heating and cooling.

Rapid, nation-wide delivery service by Char-Gale's own fleet of trucks means prompt delivery direct to you. Reduces your inventories to save you money and space.

Char-Gale MANUFACTURING COMPANY
ANOKA, MINNESOTA

power drain. It measures 6½" long, 2-11/32" wide, 1-11/16" deep, weighs 9 oz. Delivered with a 65" cable, self-coiling to 18".

Made by: Radio Corporation of America, Front & Cooper Sts., Camden 2, N. J.

Circle E4 on coupon, page 142

Remco adds foot Valve and vertical ball check Valve to its burner Line

ADDITION of foot valves (illustrated) and vertical ball check valves to its line of oilburner valves has been announced by Remco. Both feature a tubing connector built into the valve body, saving the user the cost of the fitting. In addition, it speeds up installation and eliminates the possibility of a leak at the threaded connection.

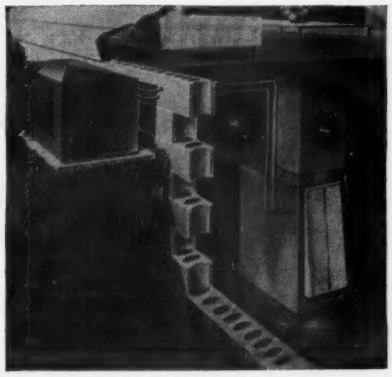
The foot valve is made for ⅜" and ½" OD tubing; check valve is also made for ⅜" and ½" OD tubing, with ¼" MPT for connection to the pump inlet. Check valves are 2⅛" long, making them usable on practically any installation.

Made by: Remco Inc., 1007 Greenmount Ave., Baltimore 2, Md.

Circle E5 on coupon, page 142

York-Heat-Shipley "Homeaire" Units offer combination Heating-Cooling

TWELVE year-'round airconditioners have been announced under the York-Heat-Shipley "Homeaire" trademark, including gas or oilfired heating units. The oilburning units have capacities of 75,000, 100,000 and 125,000 Btu/hr; the smallest heating unit may be combined with a 1½ or 2 hp compressor, the larger sizes may be coupled with a 2 or 3 hp compressor.



Largest size of the heating-cooling packages requires 29" by 44¾" floor space, stands 53¼" high. The cabinet houses the gun type oilburner, motor-driven blower, evaporator coil and refrigerant feed (Freon 22). Summer airconditioners are air-cooled, with the condensing units installed outdoors. Shipley special spring-loaded connectors facilitate connection of the refrigerant lines and assure a sealed system.

Made by: York-Shipley, Inc., York, Pa.

Circle E6 on coupon, page 142

Only WALKER Has It!

Automatic Draft Control with

Full Protection at All Vital Points!

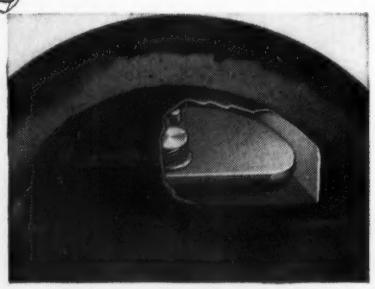
Pat. Pending

Royal Purple Model

Think of it! A draft control that's absolutely impregnable to soot, carbon, corrosion and dust . . . one that will give years of accurate, trouble-free service in spite of the most adverse operating conditions! The new Walker ROYAL PURPLE model is the first—and only—draft control with positive, all-point protection. These revolutionary improvements can't be copied or duplicated — they're exclusively Walker because of pending patents.

The Royal Purple — Hit of the Philadelphia Show

THE INSIDE STORY



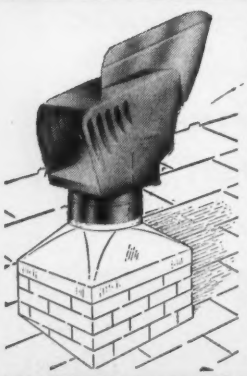
The weight adjustment assembly on the ROYAL PURPLE model is sealed in by a protective housing which keeps mechanism absolutely free from dirt deposits. Unretouched photo at right shows back of vane and housing after more than a year's service. Cutaway shows spotless condition of sealed-in weight adjustment assembly. Clean, corrosion-free operating parts assure ease of adjustment at any time.

This front view of an actual installation shows location of pivot pins which control vane movement. Notice how they are located on front face of damper and set back, away from edge. Box-type hinges completely seal delicate knife-edge pivots, keeping them clean and sensitive even after years and years of service.

For complete details on this sensational new development in draft control, see your jobber or write Walker Manufacturing and Sales Corporation.

Another Outstanding Walker Development

VENTURI-TOP CHIMNEY CAP



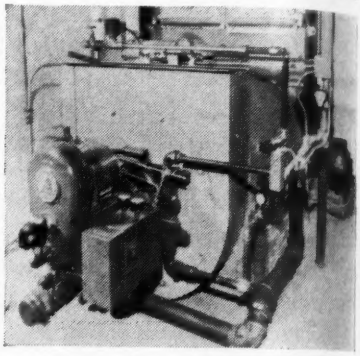
Ideal for both heating (gas, oil or coal) and ventilating applications. Directional vane keeps throat of vent facing into wind for maximum draft control. Sloping-throat design prevents back drafts and actually increases draft effectiveness by constricting it as it passes over chimney opening. Unit rotates on a friction-free, hardened-steel ball bearing. Pivot is also of hardened steel to assure lifetime operation. Ring guide bearing in pivot post keeps cap absolutely perpendicular—doesn't sag or lean. Streamlined design is both attractive and functional — a combination which makes it a favorite with today's architects.

Walker Manufacturing and Sales Corp.

1750 Penn St. St. Joseph, Mo.

Preferred Utilities incorporates Water-wall Furnace in its Units

PREFERRED UTILITIES has undertaken the manufacture and national distribution of the Water-wall furnace, which will be available with a Preferred horizontal rotary oil-burner as part of the packaged, automatic "Thermopak combustion system. The Water-wall furnace also will be offered for use with standard burner equipment for installation on existing boilers.



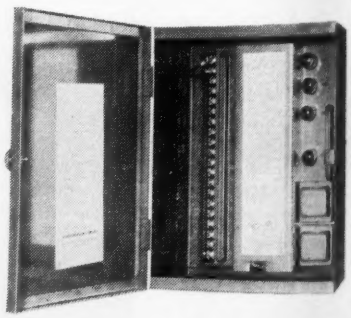
The Water-wall increases boiler capacity, eliminates special refractory work and pitting, improves efficiency and results in fuel savings. It is permanently connected to the boiler to lengthen the firebox, increase furnace volume, add radiant heating surface and provide the boiler and its waterbacked extension with forced circulation.

Made by: Preferred Utilities Mfg. Corp., 1860 Broadway, New York 23, N. Y.

Circle E7 on coupon, page 142

Honeywell flame-safeguard Relays offer wide Choice of Sequencing

R478A AND R478B FLAME-SAFEGUARD RELAYS announced by Honeywell feature sensitive electronic flame detection and a wide choice of control sequences and timings. R478A uses two flame rectification detection circuits with either flame rod, standard photocell or both; R478B employs a Flameguard lead sulphide photocell sensing unit, coupled with a separate flame rectification circuit for proving the pilot with a flame-rod.



Both Protectorelays also incorporate Honeywell's "safe-start" component check system to double check the electronic circuitry after every power failure. Models are available with 5 or 30 second prepurge timing; 15, 60 or 180 second ignition timing; interrupted or intermittent pilot and high-firing as the main fuel valve opens or at the end of the ignition timing period. Models are available for 120, 208 and 240 volt, 60 or 50 cycle, applications.

Made by: Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.

Circle E8 on coupon, page 142

Put yourself in "clover"..... with the pick of the "cooling crop"

INTERNATIONAL Economy **AIR CONDITIONING**

Every day, more dealers make the happy discovery that the summer air conditioning business — like June — is blossoming out all over.

Result: a rush to get into the market and reap a lush harvest. And the best way to get in quick, profitable touch with it — is with the big International line! International makes every type of conditioner you may need — and builds them to fit each job *right*. Does the job call for an All-Year Conditioner? International's got it. Add-on unit for a furnace follow-up sale? Got it. Air-cooled or water-cooled Horizontals? Sure! Commercial units, Compressor-Condenser units, Cooling Coils for Remote Systems — we make 'em all. And — with '56 promising to be the industry's biggest year yet — you can easily sell 'em all!

There are busy, profitable days ahead for International Economy dealers (present and future — cooling and heating) — why wait another day?

Sell the finest "coolers" in Air Conditioning today

- **All-Year Conditioners**
- **Air or Water-Cooled Add-On Units**
- **Air-Cooled Horizontal Units**
- **Water-Cooled Horizontal Units**
- **Compressor-Condenser Units**
- **Water-Cooled Commercial Units**
- **Cooling Coils for Remote Systems**

See your distributor — or write: Dept. F-556

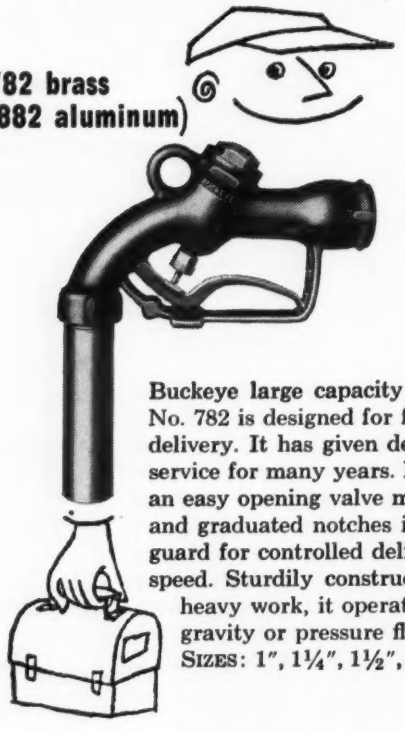
since 1842...

INTERNATIONAL Heater Co., Utica 2, N.Y.

two workman-like Fuel Oil Delivery Nozzles

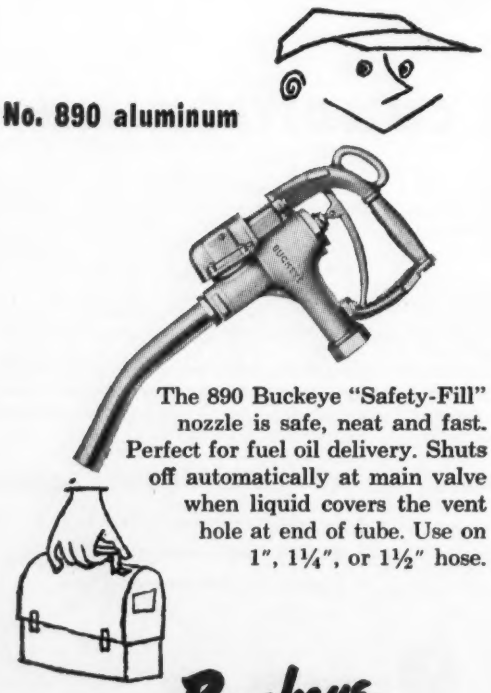
Which one do You need?

No. 782 brass
(No. 882 aluminum)



Buckeye large capacity nozzle No. 782 is designed for fuel oil delivery. It has given dependable service for many years. No. 782 has an easy opening valve mechanism, and graduated notches in rear guard for controlled delivery speed. Sturdily constructed for heavy work, it operates on gravity or pressure flow. SIZES: 1", 1¼", 1½", 2".

No. 890 aluminum



The 890 Buckeye "Safety-Fill" nozzle is safe, neat and fast. Perfect for fuel oil delivery. Shuts off automatically at main valve when liquid covers the vent hole at end of tube. Use on 1", 1¼", or 1½" hose.

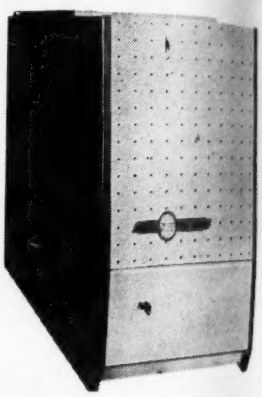
Buckeye

through your oil equipment distributor, or write

BUCKEYE IRON & BRASS WORKS, Dayton, Ohio

Williams Oil-O-Matic furnace Line has all Types for domestic Heating

A NEW LINE of warm air furnaces announced by the Williams Division includes a complete selection of oilfired models. There are low boys, high boys, suspended and counterflow units for domestic heating, available in models with bonnet rarings from 70,000 to 130,000 Btu/hr. The units are factory assembled and wired and feature heavy gauge heat exchangers and oversized blowers.



Oil units are "sealed in steel" from top to bottom and incorporate levelizers which eliminate the need for concrete bases, grouting and sealing.

Made by: Williams Division, Eureka Williams Corp., Bloomington, Ill.

Circle E9 on coupon, page 142

Kalamazoo's Econo-Midget Unit occupies minimum floor Space

ECONO-MIDGET completely assembled winter airconditioning unit, designed for small home heating, is available in an oilfired model with a bonnet rating of 84,000 Btu/hr. The unit occupies minimum floor space, 25 by 41 ins., and uses a belt-drive blower for forced circulation.

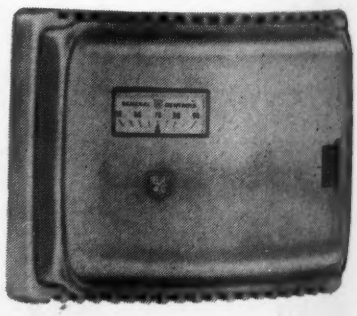
Burner, blower, motor, filter and other components have been engineered for quiet, trouble-free performance. Parts are fully accessible.

Made by: Kalamazoo Furnace & Appliance Mfg. Co., 100 Rochester Ave., Kalamazoo, Mich.

Circle E10 on coupon, page 142

General Controls has line voltage Thermostat; time Delay oil Valve

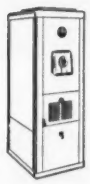
GENERAL CONTROLS line voltage thermostat (T220) is designed for control of unit heaters, circulators, motors and fans. A cooling model controls airconditioning, cooling, and ventilating. Available with or without cooling or heating anticipation, it features sealed contacts, clearvision thermometer and roll type temperature dial. Includes key to lock cover and dial.

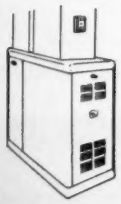


Unmatched Economy + Whisper-Quiet Operation = Easy, Profitable Sales

TORIDHEET
Rotary Wall Flame Oil Burners

Power These Fuel-Thrifty Units


Model ORA Hi-Boy


Model ORA Winter Air-Conditioner

Model ORU Boiler

Model ORD Counterflow

Model ORM Water Heater

You make useful friends out of customers when you sell time-tested TORIDHEET Rotary Wall-Flame equipment. The operation is so reliable and quiet, the fuel economy so great, that customers tell friends and neighbors—actually become part-time salesmen for you.

Proved fuel savings up to 40% and trouble-free operation (only 1 moving part) make TORIDHEET a profitable line for you to sell—a profitable line for your customers to buy. If you're not selling TORIDHEET you're missing a bet!

COMPLETE UNITS AND CONVERSION BURNERS—OIL OR GAS

Wall-Flame Oil Burners • Gun Burners • Wall Flame Boilers • Furnaces and Water Heaters
Gun Fired Boilers and Furnaces • Gas Conversion Burners and Gas Fired Furnaces
Low-Boys • Hi-Boys • Counterflows • Comfort Cooling Equipment

SOME DESIRABLE DEALER FRANCHISES AVAILABLE—YOUR INQUIRY IS INVITED

CLEVELAND Toridheet AUTOMATIC HEATING

Toridheet Division
CLEVELAND STEEL PRODUCTS CORPORATION
16035 Brookpark Road • Cleveland 11, Ohio

Affiliated Canadian Manufacturer: Aero Tool Works Limited, Toronto, Ontario

CONVERSION JOB *Tips*

Ever Lose a Job on Price?

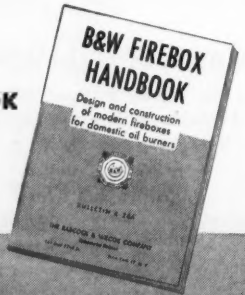
Sure you have . . . and we're not going to tell you that B&W *lightweight* Refractories will help you be the low bidder.

But we can tell you this—it's easy to justify the additional cost of a B&W Insulating Firebrick Firebox, even to the customer who buys on price. In fact, his very attitude toward cost makes him easier to sell. When you tell him that your quotation is based on the best available equipment to give him low fuel bills, long life and freedom from repairs, he'll listen. Give him an example. For instance . . .

"I can buy a combustion chamber for as little as $3.95. However, the one I'm putting into this job costs about $9.00. Why is it worth the extra money? Because it insulates better and saves you as much as 25% on fuel. For you that's $50 or more every year—just like putting money in your pocket!"

And there's another strong selling point in your favor, too—quieter operation. The same lightweight structure that enables B&W Insulating Firebrick to cut fuel bills also absorbs combustion noise. No nerve-shattering "explosion" when the burner goes on. Your customer can fully enjoy the comfort of oil heat.

Send today for the
B&W FIREBOX HANDBOOK
a valuable guide for every installer



THE BABCOCK & WILCOX CO.
REFRACTORIES DIVISION
General Offices: 161 East 42nd St., New York 17, N.Y.
Works: Augusta, Ga.
R-511

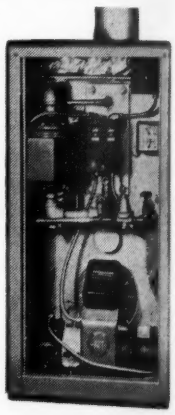
General's K281 time delay oil valves for domestic high pressure atomizing oilburners are compact and packless, with soft seat. The ½" IPS conduit connection includes time delay, positioned apart from coil. Approximate opening delay 2½ to 8 secs.; valve re-operates within stated time after shutdown of only 5 mins.

Made by: General Controls Co., Skokie, Ill. or Glendale, Calif.

Circle E11 on coupon, page 142

Pate adds two packaged boiler Units for domestic water and space Heating

PATE COMPANY has added two boiler-burner units to its Imperial CB135 line for domestic heating. Both units have a system of controls to prevent the unit from having to carry the house heating and domestic hot water load at the same time. During a period of hot water draw, the controls automatically shut off the unit's circulator and turn on the burner. When domestic water service is satisfied, the controls restart the circulator to the radiation system.



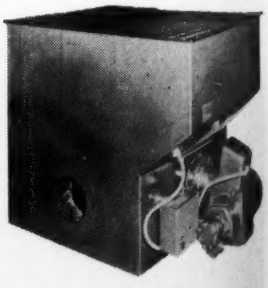
The two new units are for basement or utility room installations, are completely assembled with all controls, piping, fittings, valves and wiring. Installation only requires connection to water and fuel lines, flue and electricity. Pate 600 series unit measures 27" deep, 40½" high and 20" wide, is equipped with 16-2" tubes and rated for 550 sq. ft. of radiation; Pate 900 series measures 30" deep, 46½" high and 20" wide, with 20-2" tubes and rated for 820 sq. ft. of radiation.

Made by: The Paye Co., Inc., Walnut and Moore Sts., Darby, Pa.

Circle E12 on coupon, page 142

Floor Furnace by Quiet Automatic is fired by a pressure Oilburner

MODEL 82FG oilfired floor furnace, announced by Quiet Automatic, is shipped wired and assembled, equipped with a high pressure atomizing oilburner. Low installation cost is one of the features of the unit; even the controls are wired at the factory.



Quick service also is possible, because if there is inadequate space below the installed furnace, it may be serviced from the top. Btu capacities developed are 82,000 and 94,000.

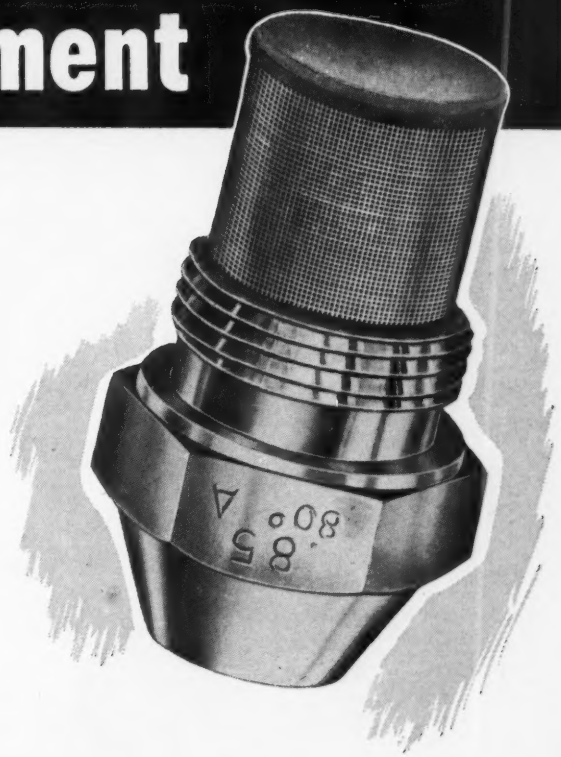
Made by: Quiet Automatic Oil Burner Corp., 33 Bloomfield Ave., Newark, N. J.

Circle E13 on coupon, page 142

THE HEIL CO.

uses Delavan Nozzles as Original Equipment

Another on the long list of heating equipment manufacturers using Delavan Nozzles as original equipment on their oil burners is The Heil Co. Outstanding in this company's line is the Model LB-1 low-pressure conversion burner which performs with remarkable efficiency. It's dependable, low-pressure pump can be adusted instantly and accurately without removing any part of the burner assembly.



The confidence shown in Delavan Nozzles by the Heil Co. is typical of more than 120 other oil burner manufacturers. They know Delavan Nozzles will consistently deliver soft, quiet fires. So, test them yourself and see why Delavan rates first with thousands of servicemen, too, who insist on them for all of their replacement needs.

Write for Catalog No. 148B

DELAVAN *Manufacturing Co.*

MEMBER OHI OIL-HEAT INSTITUTE OF AMERICA

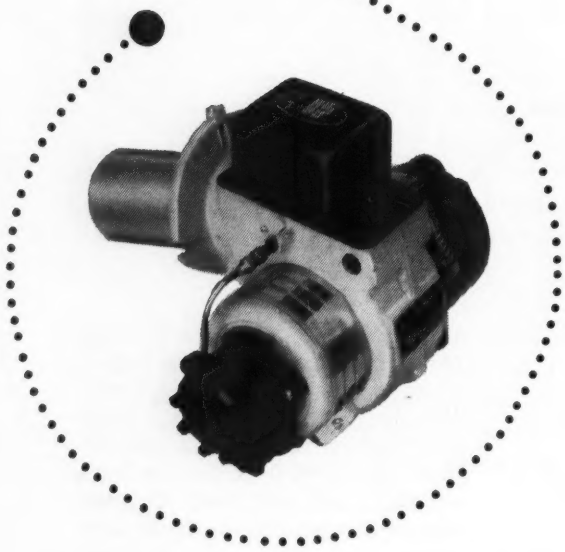
WEST DES MOINES, IOWA

Creative Engineering

PRODUCES

Nu-Way

OIL BURNERS

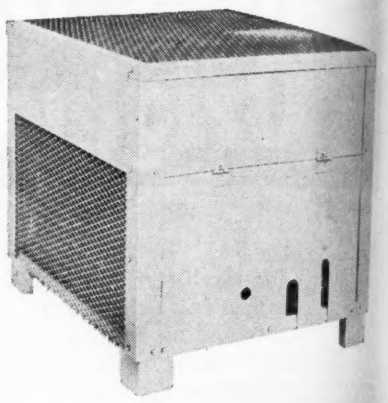


Save yourself time, bother and worry. Select an oil burner that you can be sure will live up to your customers' expectations. Nu-Way Oil Burners, a product of thirty-five years of creative engineering, have been *exceeding* expectations . . . and establishing new goals of engineering standards. Only the highest quality components go into the building of Nu-Way Burners. Performance-tested motors — extra-heavy transformers . . . plus rigid sand cast housings and 0.0015" motor pump alignment for quieter operation. Painstaking final assembly assures you that the **creative engineering** of Nu-Way Burners results in longer life and lower upkeep.

For detailed information, write the Nu-Way Corporation, Rock Island, Illinois, Dept. FO-556.

Coleman adds three air-cooled Units to current Line of Airconditioners

STRAIGHT AIR-COOLED condensing units in 2, 3 and 5-ton sizes have been added to the Coleman 1956 cooling line. All have hermetically sealed compressors, designed for use with the Blend-Air line of direct expansion plenum coils and vertical coolers. Coils are copper with aluminum fins; a hinged door affords access to controls.



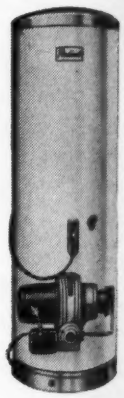
Smallest of the three is 24" wide, 26½" deep and 23¼" high; the 3 and 5-hp models are available for single and three-phase current. Cabinets are waterproofed, undercoated and finished in neutral tone paint.

Made by: The Coleman Co., Inc., Wichita, Kansas.

Circle E14 on coupon, page 142

Radiant oilfired water Heaters in glass-lined or copper Models

DIRECT OILFIRED water heaters announced by Radiant Utilities are available either in glass-lined or copper models; both are fired with Radiant gun type oilburners.



Model GL-30, glass-lined unit, is designed for hydrostatic pressures up to 300 lbs. psi and is equipped with a magnesium anode. Heavy duty Fiberglas insulation is used to minimize heat loss.

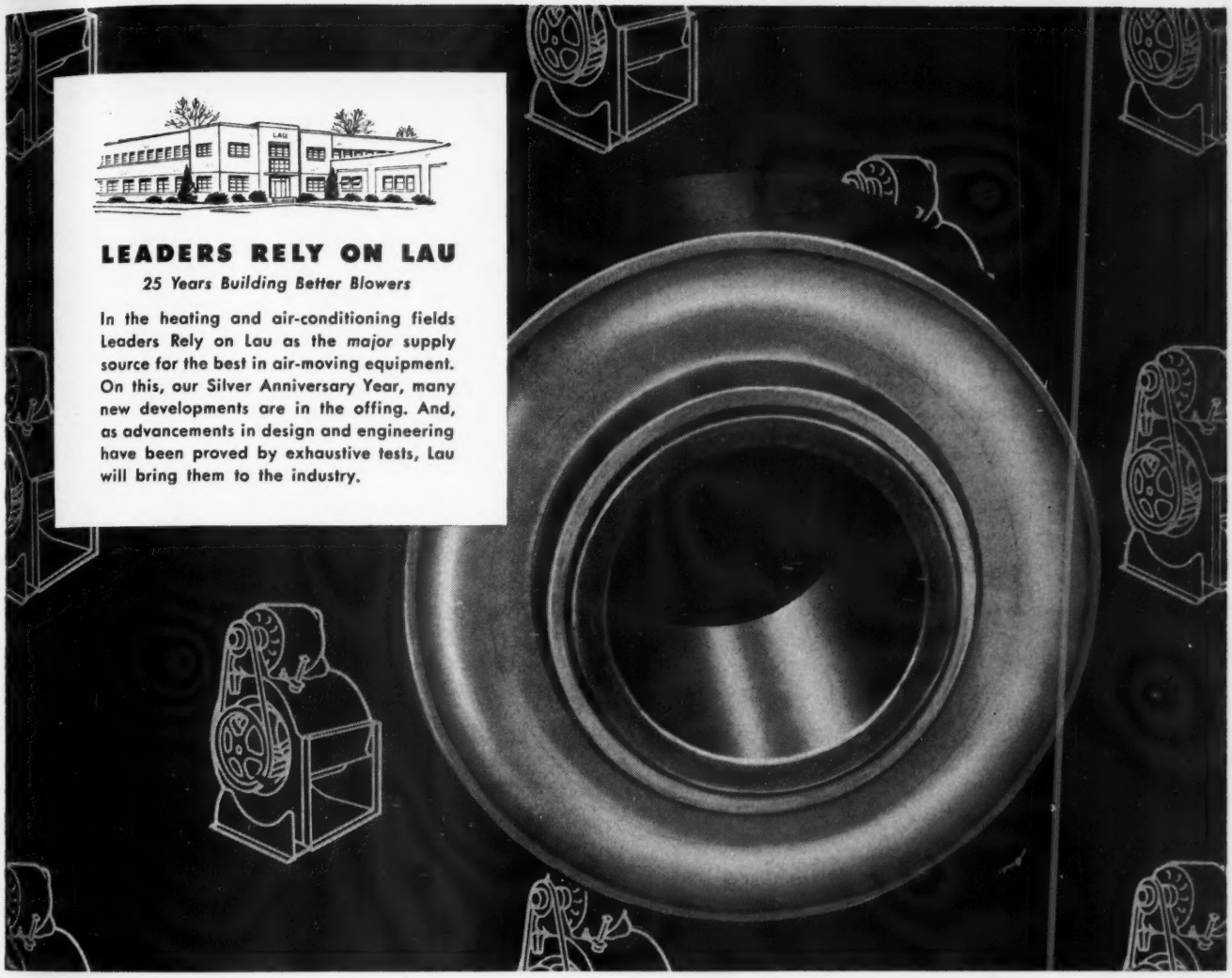
Model CP-30 utilizes a solid copper tank, encased in heavy gauge steel jacket, to withstand hydrostatic test pressure of 525 lbs. psi. Tank is surrounded by Fiberglas insulation.

Made by: Radiant Utilities Corp., 8817—18th Ave., Brooklyn, N. Y.

Circle E15 on coupon, page 142

Admore Folders to record fueloil Deliveries and household Expenses

A FUELOIL DELIVERIES and household expense folder, prepared by Admore Business Promotion Co., is being used successfully by fueloil dealers. They make them available to their customers as a handy method of recording the date of each fueloil delivery, the number of gallons delivered, price, date of payment and an aggregate total. Also, space is provided for a monthly total expense record for other



LEADERS RELY ON LAU

25 Years Building Better Blowers

In the heating and air-conditioning fields Leaders Rely on Lau as the *major* supply source for the best in air-moving equipment. On this, our Silver Anniversary Year, many new developments are in the offing. And, as advancements in design and engineering have been proved by exhaustive tests, Lau will bring them to the industry.

GILT-EDGE SECURITY

Our exclusive LAU-pak Gold Seal Bearings solve many problems. There are NO oil cups, NO oil tubes and NO servicing. As a matter of fact *these* sealed bearings are lifetime lubricated in the bearing housing of all Lau Series "A" belt drive Blowers. There is no need for access doors, the blower may be positioned at any angle, the operation is smooth and quiet; and friction is largely eliminated. Thus, with LAU-pak Gold Seal Bearings you are assured of lifetime service in normal usage. Lau also makes large capacity oil reservoir bronze bearings with spring pressure. You can depend on LAU quality. Write Lau today, Dept. M.

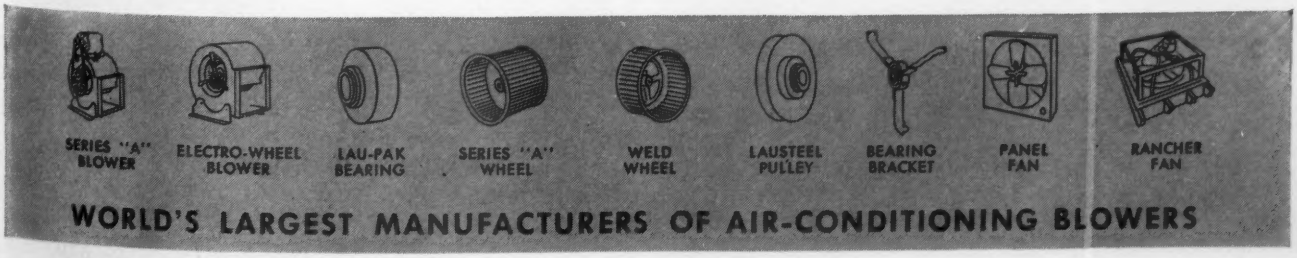
ANNIVERSARY 25TH ANNIVERSARY LAU

THE LAU BLOWER COMPANY

2000 Home Ave. • DAYTON 7, OHIO

Other plants at Kitchener, Ont., Canada, and Azusa, California

LB-3, 56



WORLD'S LARGEST MANUFACTURERS OF AIR-CONDITIONING BLOWERS

Since 1890...
Rockford
BRASS WORKS
performance proved!
For 66 years Rockford Brass Works has been supplying valves and ground key work through leading wholesalers to contractors and dealers . . . for lasting performance you can depend on Rockford products . . .
send today
for your free copy
of the new valve
catalog
ROCKFORD BRASS WORKS
ROCKFORD, ILLINOIS

utilities besides fueloil, such as electric, phone, gas and water. The folder actually is made up as an over-sized envelope, die-cut to include a business reply postcard, on which the dealer can list any or all of the services he offers.

Admore points out that a specific reason for designing the folder was to allow a dealer to present it to the homeowner who has "just signed a fueloil contract with another company." Admore reasons that the folder will be retained and used, with the dealer whose name is imprinted prominently thereon benefiting from this continuing exposure to one of his prospects.

Made by: Admore Business Promotion Co., 617 East State Fair, Detroit 3, Mich.

Circle E16 on coupon, page 142

Bell & Gossett's flow control Valve usable in straight or angle Position

A TWO-WAY FLO-CONTROL VALVE announced by Bell & Gossett is adaptable to straight or angle installation in a forced hot water heating system. The new SA models are available in 1", 1¼" and 1½" sizes; they replace individual straight or angle pattern valves of the same size.

The company offers a complete line of flow control valves, available in cast-iron or bronze in sizes from ¾" to 4".

Made by: Bell & Gossett Co., Morton Grove, Ill.

Circle E17 on coupon, page 142

Hyker magnesium hand Truck for one-man window unit Installation

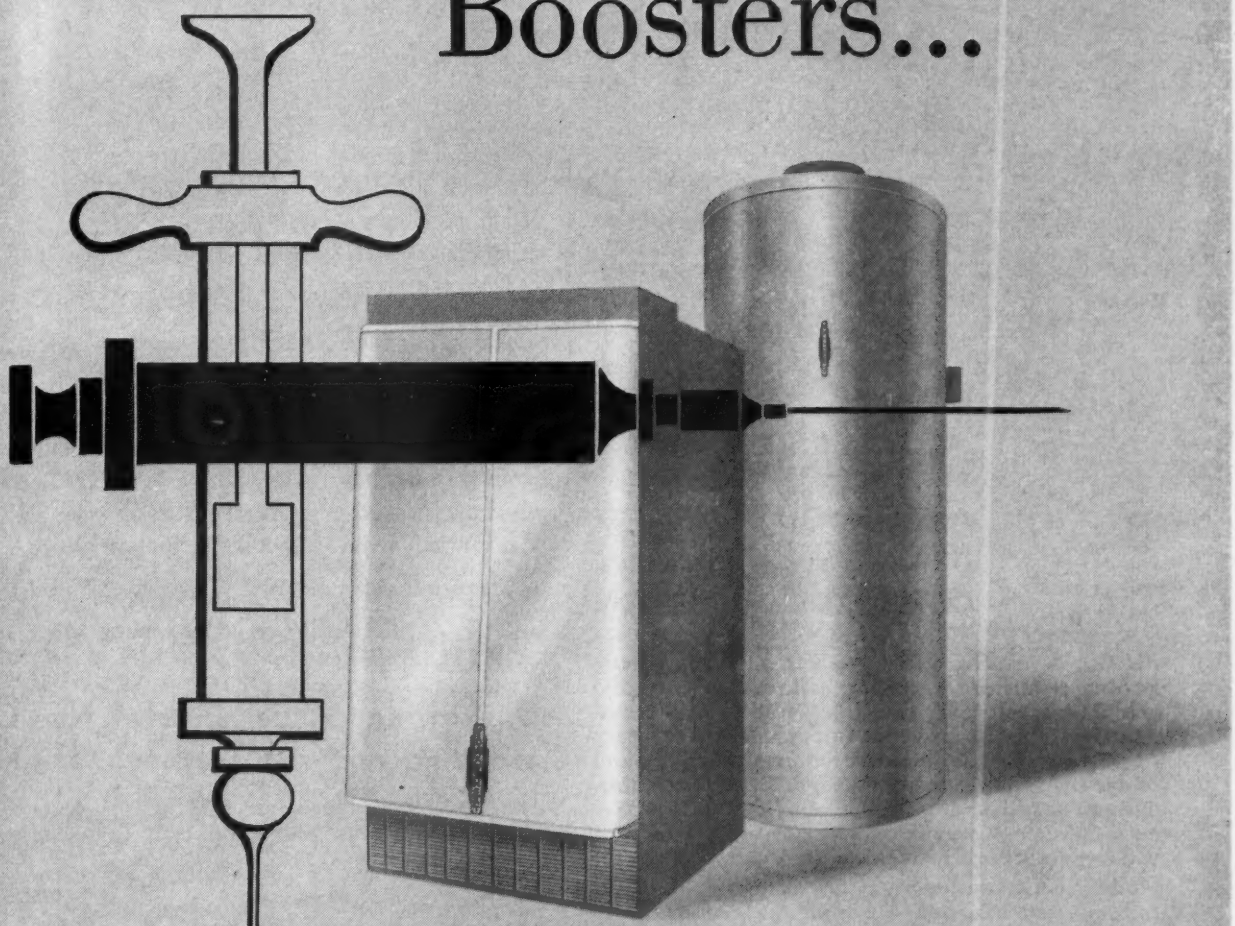
HYKER, lightweight magnesium hand truck, has been designed specifically to permit one-man delivery and installation of airconditioners. The truck walks upstairs on rubber - covered legs when its handles are pumped and raises airconditioners over radiators and furniture with its screw-operated lifter shelf.

It can be used for general appliance handling, as well, and permits one man unaided to handle twice his own weight up and downstairs, on and off trucks.

Made by: L-S Htg. & Eng. Co., 911 W. Lycoming, Philadelphia 40, Pa.

Circle E18 on coupon, page 142

Boosters...



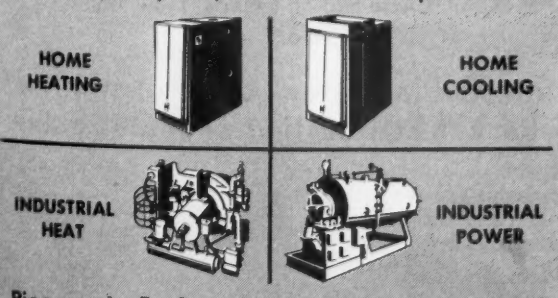
for increasing heating sales

Two newcomers to York-Heat's broad line of heating and air conditioning equipment are giving dealers the boosters they need to beat out competition. Styled to appeal to the home owner, these new models mean greater sales potentials to you the dealer. For more details on York-Heat's Business Booster program for 1956 and the *selective* dealer franchise, we urge you to send the coupon today.

YORK-HEAT

A PRODUCT OF YORK-SHIPLEY, INC., YORK, PENNA.

For nearly 40 years, Home Comfort Specialists—



Pioneers in Packaged Industrial Heat & Power

Residential Division
York-Shipley, Inc.
York 2, Pennsylvania

We're interested in your Booster Shots to up our heating sales and your 1956 Business Booster program. We want to talk it over with you soon.

Firm _____

Street _____

City _____ **Zone** _____ **State** _____

Name _____

ening Dispatch
HOME EDITION
T HOME NEWSPAPER
TUESDAY, NOVEMBER 29, 1955
44 Pages
11 Narrowly Escape Death by Monoxide
Fumes Are Backed Up By Cold
THIS . . . CAN HAPPEN ANYWHERE!

LET **Quickdraft** ASSURE YOU CONSTANT DRAFT FOR COMPLETE COMBUSTION

Because of natural draft troubles, more and more heating plants are operating at low efficiency and spilling combustion gasses into buildings. Intermittent firing makes it all but impossible for ordinary chimneys to handle increased volumes of heavy and cooler by-products of combustion. Better fuels produce more carbon and sulphur dioxides (CO_2 is 55% and SO_2 is 255% heavier than air). Improved furnaces and boilers let less heat escape into chimneys.

Modern fuels and heating equipment *need full and constant draft.* Turned "on" and "off" automatically with the fire, Quickdraft power draft units prevent noxious concentrations of deadly fumes and dangerous accumulations of explosive gasses from escaping into buildings.

Quickdraft cures heating-plant draft deficiencies . . . without wasting heat to "warm-up" the stack. With or without a chimney, it assures the constant draft required for burning all fuels efficiently and economically. It keeps chimneys dry and eliminates chattering, smoking and sooting. Write today for complete engineering data on the power draft unit that assures complete and economical combustion for health and safety.

POWER DRAFT *WITHOUT* FANS OR MOTORS IN SMOKE LINE

N-806-QD

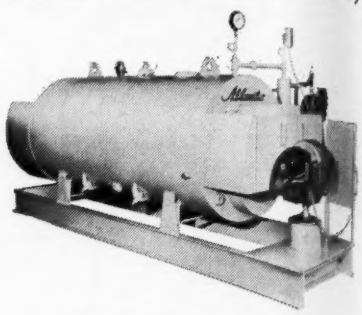
Exhaust line can't be blocked by power failure.
Commercial models for smoke outlet diameters 12, 14, 16, 18, 20, 22, 24 and 30 inches.
Residential models for smoke outlet diameters 4, 6, 7, 8, 9 and 10 inches.

Quickdraft COMPANY

Dueber-Hampden Bldg.
P. O. Box 87-F
Canton 1, Ohio

Atlantic's popularly priced steam Generator comes in six Capacities

AVAILABLE in six capacities ranging from 10 to 50 hp is a popularly priced low pressure steam generator made by Atlantic Steel Boiler Co. The self-contained unit features low water line, 99% assured dry steam, 80% operating efficiency.



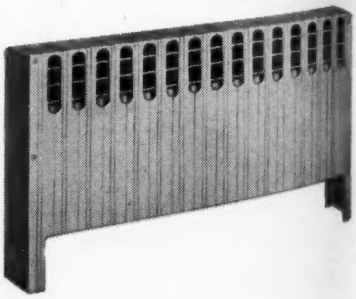
Designed to operate with natural draft, the generators are available with industrial draft fans where a large stack or chimney is not desirable. The oilburner is fitted with electronic control mounted in blast tube, shell combustion head, delayed action valve and is mounted and wired ready for installation. The packaged units are shipped with all refractory in place and are suitable for both steam and hot water applications.

Made by: Atlantic Steel Boiler Co., Philadelphia, Pa.

Circle E19 on coupon, page 142

Dunkirk announces Line of Blue Circle standing and recessed type Radiation

BLUE CIRCLE cast-iron free standing and recessed radiant and convection type radiation has been announced by Dunkirk Radiator, designed for residential and non-residential uses. Integral fins direct heat outward into the room through grille openings.



Supplied in lengths from 9" up to 99" in 4½" increments and in a 20" height, the radiation offers a wide degree of flexibility. Installed free standing units project only 5" into the room. Available with or without bottom inlet grilles. No covers are required.

Made by: Dunkirk Radiator Corp., Dunkirk, N. Y.

Circle E20 on coupon, page 142

Vape-O-Plate steel Disc functions as oilburner combustion chamber Baffle

VAPE-O-PLATE is a stainless steel disc, which rests on three adjustable legs over oilburner combustion chambers. It is semi-conical in shape, with a corrugated design to increase its reflective characteristics.

Besides improving vaporization and burning of the oil, the baffle also is intended to act as a heat deflector and

NIAGARA

meets the need for a low-cost quality furnace with the

ALL NEW NIAGARA Series 70

FORCED AIR FURNACE LINE

Model G-70-100FA

Model O-70-100FA

Fully Automatic GAS OR OIL MODELS

9 DIFFERENT OIL-FIRED MODELS FROM .75 g.p.h. to 1.5 g.p.h.

15 DIFFERENT GAS-FIRED MODELS FROM 50,000 BTU to 140,000 BTU

HIGH BOY— DOWN FLOW— BASEMENT MODELS to fit ANY HOME HEATING REQUIREMENT

NEW Construction Features

- Compact Efficient Design
- Modern Styling
- Completely Assembled
- Completely Wired

NEW HEAT EXCHANGER

- Cylindrical in shape—made entirely of 14 gauge steel

Direct or Belt Driven Blowers

- Small-size furnaces equipped with direct-drive, center-motor-mount twin wheel blower.
- Belt-drive blowers optional on all models.

SELECTION OF CONTROLS

Choice of A.G.A. approved Honeywell, Standard or Self-generating controls.

OIL MODELS equipped with famous **NIAGARA OIL BURNER** with the **Supra-Flame Head**

AMERICAN GAS ASSOCIATION — CONFORMS WITH NATIONAL SAFETY REQUIREMENTS — APPROVED

HERE'S A PROFIT BUILDER FOR YOU

For Complete Information and Specifications Write or Phone

NIAGARA FURNACE DIVISION

THE FOREST CITY FOUNDRIES COMPANY

2500 West 27th Street • TOwer 1-5040 • Cleveland 13, Ohio

***NIAGARA*—the word for maximum heat at minimum cost.**

Fueloil & oilheat

direct hot gases down into the chamber and add to the radiating surface. Vape-O-Plate is installed by inserting its legs in slots, slipping through fire door and setting it on top of the chamber. Weighs 3 lbs.

Made by: The Vape-O-Plate Co., Janesville, Wis.

Circle E21 on coupon below

Conco Modulux year-'round Unit has a face-and-by pass Damper

A YEAR-'ROUND CONDITIONER, the Conco Modulux is equipped with a face-and-by pass damper system for both heating or cooling. This is described as an air modulating technique that provides a continuous circulation of air blended to match a home's changing rate of heat loss or gain. An electrostatic air filter is included.

Continuous circulation and the damper system result in improved winter performance, especially during moderate weather periods. During the summer, when the compressor shuts off the air is by-passed around it for continuous circulation, without pick-up of moisture from the air passing over the wet cooling coil. Dehumidification is thereby improved.

Made by: Conco Eng. Works, Mendota, Ill.

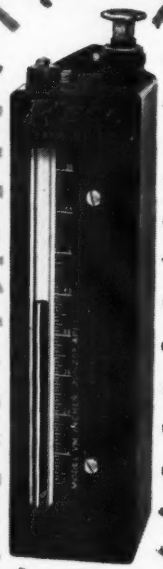
Circle E22 on coupon below

new!

KECO

Remote-Reading TANK GAUGE

For Oil and Gasoline



➡ Versatile!

➡ Attractively Priced!

➡ Economical to Handle!

➡ Minimum Dealer Inventory!

FREE BULLETIN shows why the Keco gauge is a natural for users, distributors and dealers alike. Write Today!

KING ENGINEERING CORP.

Box 410 • Ann Arbor, Mich.

MANUFACTURERS OF GAUGING EQUIPMENT FOR OVER 30 YEARS

3 NEW Hi-Recovery OIL-FIRED HOT WATER HEATERS FOR 'YEAR ROUND' HOT WATER

QUIET AUTOMATIC OIL FIRED WATER HEATER

Use No. 2 oil from the regular fuel oil tank

GLASS LINED With Anode Rod

#30 Gallon — 100 Gallon Recovery Per Hour

5-YEAR WARRANTY

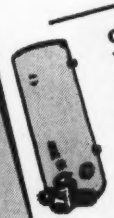
GALVANIZED

With 2 Anode Rods

30 Gallon — 100 Gallon Recovery Per Hour

5-YEAR WARRANTY Also 40 Gallon Size

200 Gallon Recovery Per Hour



COPPER LINED

30 Gallon — 118 Gallon Recovery Per Hour

10-YEAR WARRANTY

Equipped with the World Famous QUIET AUTOMATIC Oil Burner and Minneapolis Controls.

A PRODUCT OF

QUIET AUTOMATIC BURNER CORP.

J. G. KAVENY, President

33-35 BLOOMFIELD AVE. NEWARK 4, N. J.

READER SERVICE COUPON

FUELOIL & OIL HEAT READER SERVICE
2 West 45th St., New York 36
REPLY CARD MAY ISSUE
Mail Now—Coupon Expires July 31, 1956

Circle numbers of new product items on which you want more information:

NEW PRODUCTS

E1 E2 E3 E4 E5 E6 E7 E8 E9 E10
E11 E12 E13 E14 E15 E16 E17 E18 E19 E20
E21 E22

ADVERTISEMENTS—Give page number and name of advertiser about whose products you want more information.

Page ..... Advertiser .....

Your Name .....

Company ..... Position .....

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Check Classification of principal dollar volume:
☐ Fueloil Dealer ☐ Parts and Equipment Jobber ☐ Manufacturer
☐ Manufacturer Employee ☐ Manufacturers Rep. ☐ Oilheating Dealer ☐ Other

Built for fast, accurate, economical "DEGREE DAY" RECORDS CONTROL

BURROUGHS SENSIMATIC accounting machine

SYSTEMS ADVANTAGES

Eliminates Rehandling of Figures. Each amount or reference is indexed on the keyboard only once. Sensimatic automatically prints the figures in the proper position in each column on the form.

Eliminates Duplicate Records. Automatic printing of "next day delivery" on the customer's ledger supplies all cross indexing for fast, efficient reference.

Automatic Computation of Next Delivery Day. This is where you make impressive savings in clerical time and reduce the chance of error. Your Burroughs Man will be glad to show you efficient methods.

Accumulated Delivery Quantities. The Sensimatic automatically accumulates the quantity of fuel delivered by each driver.

The advantages of Sensimatic in "Degree Day" systems applications are impressive. Phone our local office for a demonstration, or write direct to Burroughs Corporation, Detroit 32, Michigan.

FEATURE ADVANTAGES

Complete Automatic Control. Sensimatic's "Stop and Go" sense is built right in so that it automatically moves from column to column, printing the data you need and computing totals.

Various Width Forms Accommodated. Various width forms and columnar arrangements can be accommodated on the Sensimatic for systems flexibility.

Easy Form Alignment. Form insertion and alignment is one fast motion. Forms ride in chutes. They are aligned simply by dropping them to the proper depth, where all posting is visible.

Job-To-Job Versatility. The control unit gives you fingertip change. Just turn the knob, and your Sensimatic is ready to go to work on another posting job.

"BURROUGHS" AND "SENSIMATIC" ARE TRADE-MARKS

WHEREVER THERE'S BUSINESS THERE'S Burroughs B

SALES ENGINEERING OPPORTUNITY

◆

Good Starting Salary. Excellent Advancement Possibilities.

Profit Sharing - Retirement Plan
Group Life Insurance &
Hospital Insurance.
Pleasant Working Conditions In Modern Air Conditioned Office.

◆

EXCEPTIONAL opportunity for sales-minded engineer (26 to 40) with experience in the oil heating field. Duties will include sales calls with factory representatives, service calls, lectures at service clinics and industry association meetings and liaison between factory engineering and the customer. Job is ideal for man who prefers contact with both technical and non-technical people about diversified engineering and sales problems. Write, giving details on experience and educational background to --

Mr. David T. Morgenthaler,
Director of Sales,
Delavan Manufacturing Company
West Des Moines, Iowa

Readers' Problems

(*Begins on page 120*)

trouble, it is caused mostly by (a) poor combustion chambers which have side walls of insufficient height and which do not reach red heat when the burners run for, say, ten minutes; (b) poor design of combustion heads; (c) poor performance of atomizing nozzle and need to replace the nozzles; and (d) poor adjustments. To gain skill, replace the combustion chambers on a few jobs, installing the best chambers you can, splendidly designed and made up of rapid-heating refractory material. Use combustion testing instruments, of course because you can't get to even first base without them, and painstakingly take every step you need to arrive at unusually high CO_2 readings together with unusually low smoke-instrument readings. Try to use control set-ups and adjustments that avoid exceedingly short oilburner "on" periods, so that most the fueloil is burned while the fireboxes are exceedingly hot, at least red hot.

Oilburner specialty and supply houses can easily provide for you the packing needed for the clean-out rods of oilburners of the pot type which fire water heaters. Such packing is not a highly specialized item; it is commonly available in supply houses. If you are still in doubt about this, ask the manufacturers of the oilburners which type packing you should use.

Q. Regarding your March 1953 issue, "Try for Higher Efficiencies," p. 65. Would like to get or know where to get drawings of boilers showing whether it is best to front or rear fire for best efficiencies.

Also when converting a gas-fired hot-water or steam heating boiler from gas to oil is it best not to use a special combustion head such as the ——— make head and why not?

U. A. S., Taunton Lakes, Marlton, N. J.

A. Interesting that your just-arrived letter dated March 1, 1956 proves you still are studying or referring to a 1953 issue of FUELOIL & OIL HEAT!

We know of no literature that shows if particular boilers should be front-fired or rear-fired.

Refer to the drawings of the article

RENICK & MAHONEY, INC.

Get dependable EQUIPMENT

MARLOW VERTICAL PUMPS

For efficient handling of volatile fluids. Always dependable — on suction lifts, for underground or overhead storage, for fueling and transfer service. Easy to install. Capacities, 5 to 120 gals. per minute. Consult us now about your plant or truck equipment problems, or write for catalog.

Get dependable SERVICE
RENICK & MAHONEY, Inc.
380 Second Ave. (at 22nd St.)
New York 10, N. Y.
Complete Equipment for the Oil Trade

Proved by USE!

Works in seconds! **Loosens Rusted Bolts** *nuts, screws, "frozen" parts .... without breakage!*

LIQUID WRENCH

A powerful blend of quick-acting solvents that frees "frozen" parts without breakage. Safe for all metals and alloys.

Makes joints **LEAKPROOF!**

7 BASIC BLENDS

TiteSeal
GASKET & JOINT SEALING COMPOUND

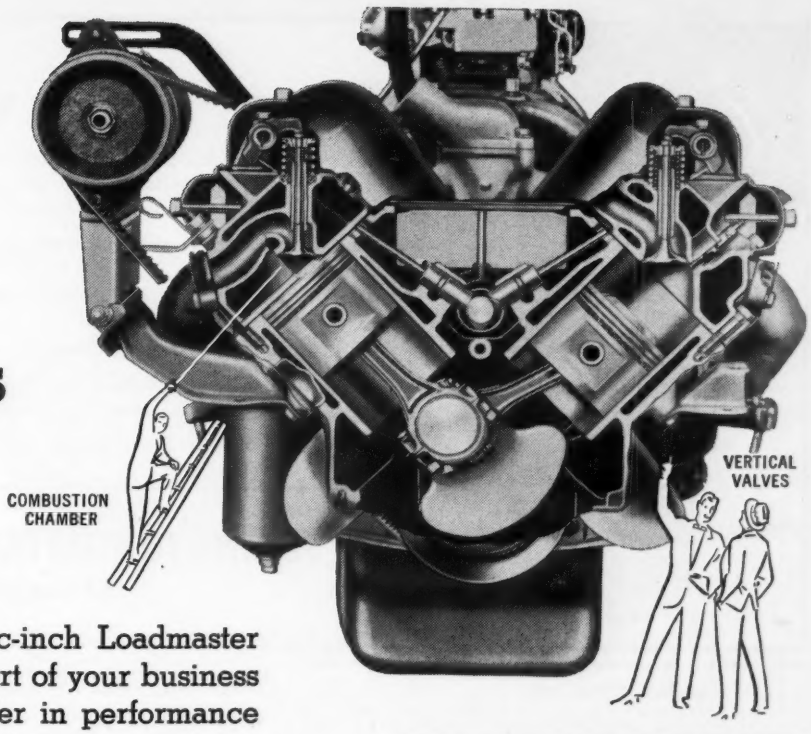
Makes all assemblies leakproof and pressure-tight. Easy to apply with brush-in-handle.

- NON-SOLVENT—WILL NOT HARDEN
- WILL NOT SHRINK, CRACK OR CRUMBLE
- HEATPROOF AND VIBRATION-PROOF

Get them from your Automotive, Hardware or Plumbing Wholesaler!

SOLDER SEAL
RADIATOR SPECIALTY CO.
Charlotte, North Carolina

Take a look inside the truck industry's newest V8!

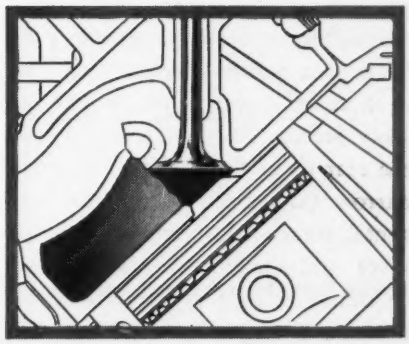


It's Chevrolet's new 322-cubic-inch Loadmaster V8 . . . and if big trucks are part of your business you'll find it has plenty to offer in performance and economy!

What you see inside that new V8 is *modern* engine design at its best! The new Loadmaster is a true heavy-duty load puller, with 310 ft. lbs. of torque and a fuel-saving compression ratio of 7.7 to 1. Extra-rugged components work together with perfected precision to produce 195 h.p.—plenty of reserve power to ease your toughest pulls!

Evidence of great engineering is everywhere in this most powerful of all Chevy truck engines. It offers the *shortest stroke* of any engine in its class; thus, engine wear is minimized, good economy assured. And it's the most compact of big-truck engines—delivers highest horsepower per pound. That's proof of *more efficient* design. Spark plugs are mounted centrally in the inverted "V" combustion chamber to give maximum heavy-duty power on regular fuel. Advanced features such as hydraulic valve lifters, chrome-plated top ring, and full-flow oil filter mean longer engine life with less maintenance expense!

And there are many, *many* such reasons why you'll do better with this new load-pulling champ under the hood! For all the facts, see your Chevrolet dealer. . . . Chevrolet Division of General Motors, Detroit 2, Mich.



Vertically mounted valves give high fuel-air turbulence during the compression stroke . . . you get maximum power from every drop of fuel!

Feature after feature proves why these big new Chevies are the work champs of the heavyweight class! New triple-torque tandem axle option lifts G.V.W.'s to 32,000 lbs. . . . G.C.W.'s to 50,000 lbs.! New frame is 25 percent heavier to stand up to your *tough* jobs. Easy, safe hauling stems from modern Ball-Race steering with bigger, stronger steering assembly. Exclusive new Powermatic transmission saves work, reduces truck wear like nothing else. No other trucks give you *so much.*

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. . . . Readers' Problems

you describe. In general, fire a long, narrow boiler from the front if the flame your burner provides is relatively short and therefore you will build a short firebox. Fire such a boiler from the rear if the flame will be long and narrow (as are the flames most horizontal rotary cup burners prefer to give) and therefore the firebox will be nearly as long as the boiler base; that causes the products of combustion to double back over the flame as the lower drawing in the article shows. Similar principles apply to boilers having round bases or bases nearly square, but in many of these front-firing and rear-firing produce more nearly the same efficiencies. Some experts prefer rear-firing greatly in boilers and furnaces where such firing gives a good view of nozzles, ignition system parts, etc. through firing or flame observation doors.

If you find that general use of your favorite combustion head gives excellent results on jobs having boilers and furnaces designed for coal or oil, by all means use the same combustion head when you convert gas-designed boilers to oil. In any boiler or furnace, you want the excellent, efficient fire that comes of using a well-designed head.

Q. Being an avid reader of FO&OH I turn to you for advice. I have several questions I would like answered please.

In a ranch-type house I want to install cast-iron baseboard radiation.

1. Is it feasible to use a series loop hook-up (¾" copper tube) and a high-velocity circulator? This would entail a loop of some 150 lineal feet.

2. What are the disadvantages of such a system? (Expansion noise, hard-to-heat radiators, etc.)

3. Would it be better to discard the series loop idea in favor of a one-pipe hook-up?

This is my first attempt at a wet-heat job and incidentally it is for my own new home.

Thank you for any help you can offer.

S. B. O. G., Wilmington, Del.

A. Answer to your first question: This has been done, but should be considered at all only for rooms which can be fitted with relatively great amounts of baseboard radiation (for the rooms' Btu heat losses) because you would have to take temperature drop of the circulated hot water into consideration. For their radiation loads, the rooms far from the boiler would need much more radiation than is installed in rooms close to the boiler. That's because distant radiation may work out to be 30°F. lower temperature, on coldest days, than radiators receiving hot water directly from the boiler.

2. Disadvantages of such a series system: a. As covered above, distant radiators must be greatly oversize; b. You'll have no way to either balance the system or turn particular baseboard radiators on or off; c. Planning on extremely high water velocities through the radiation, you invite water-flow noises.

Yet if you arrange the piping properly, you won't necessarily have troubles related to expansion noises, particularly in a house with a basement, in which you can provide U-bends in the basement to allow for pipe and radiation expansion.

3. Yes, particularly in your own house which should be heated practically perfectly, you'd better abandon your entirely-series idea. In fact certain contractors would go so far, in efforts for best heating, as to consider one-pipe heating versus two-pipe heating for such an installation, which should be nearly perfect. Particularly if you can't use a center-of-basement hot-water supply main to divide the load into two circuits (each a total of about 75 ft. long) consider a two-pipe system seriously. Unlike a one-pipe system which has long runs of series radiators, a two-pipe system involves extremely low temperature drop for radiation far from the boiler.

Draw up a one-pipe layout and a two-pipe layout. Discuss the relative advantages of each with experts at your local supply house, which sells the baseboard radiation. Discuss these also with the local representative of the manufacturer of the radiation. Send the layouts to the headquarters of the manufacturer of the radiation, and ask for consideration of each by

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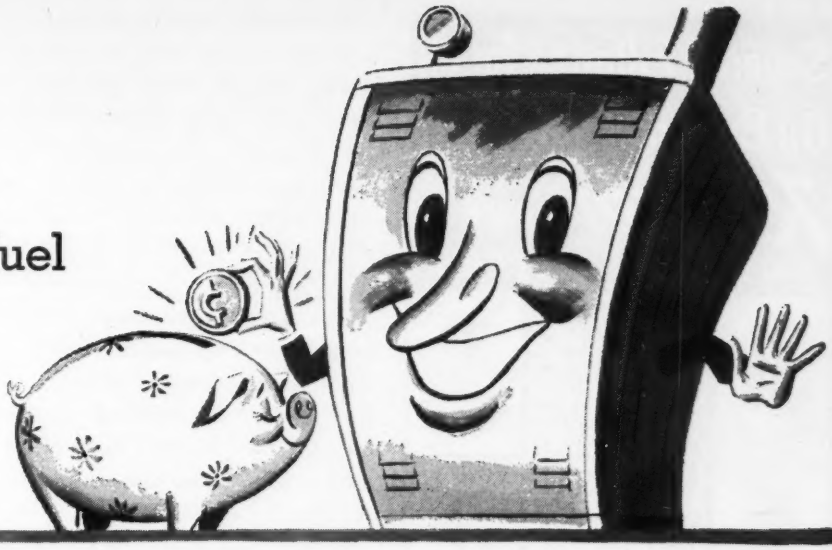
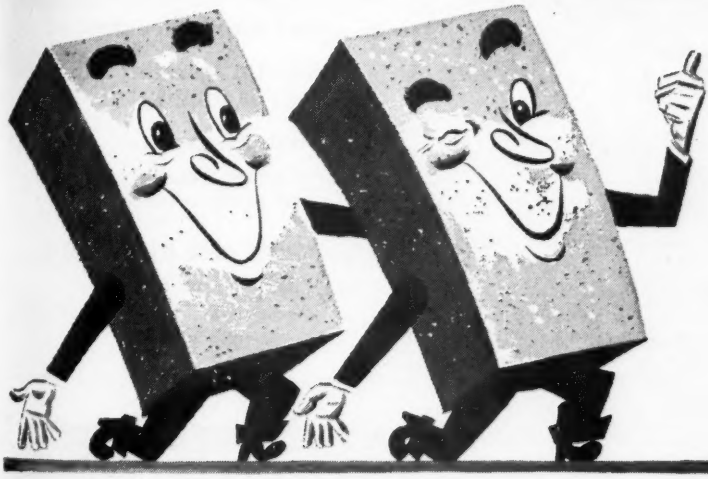
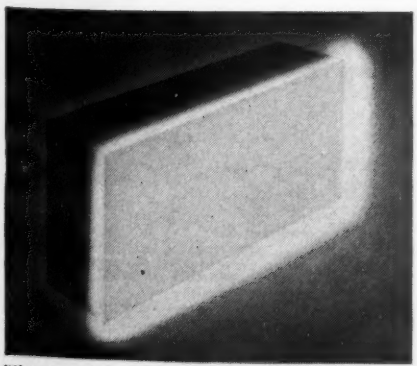




"We knew our 'skin-heat-in-seconds' would get you on the job in a hurry!"

You can build better fireboxes with this insulating fire brick that saves up to 10% on fuel



"Skin-heat-in-seconds" of J-M Insulating Fire Brick is demonstrated in this photograph. Within seconds after the burner goes on, the entire inside surface of the firebox becomes white-hot. Laboratory tests prove that this brick can save up to 10% on fuel.

IT'S EASY to make *lifetime* customers by saving them up to 10¢ on every dollar they spend for fuel. *Just build their oil burner fireboxes with J-M Insulating Fire Brick that saves fuel by getting a skin-deep curtain of white-heat intensity within seconds!*

Customers will also appreciate the fact that J-M Insulating Fire Brick in their firebox results in far less soot, smoke, and odor. And its light weight, cellular construction contributes substantially to quieter oil burner operation.

You'll find it easy to install J-M Insulating Fire Brick. Cut them quickly with a hacksaw blade . . . use them to build any shape or size firebox specified by the oil burner manufacturer. Recommended brick for domestic oil burner fireboxes are JM-20, JM-23, JM-26. For industrial use . . . JM-28 and JM-3000.

See your J-M Distributor for further information about these brick that heat up faster and save more money . . . or write Johns-Manville, Box 60, New York 16, New York. In Canada, 199 Bay Street, Toronto 1, Ontario.

For sealing against gas and air leaks, use J-M FIREITE* Asbestos Furnace Cement. For lining hearths of rotary burners, use J-M STANDARD FIRECRETE* — a hydraulic setting refractory — ready for use in 24 hours.

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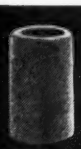

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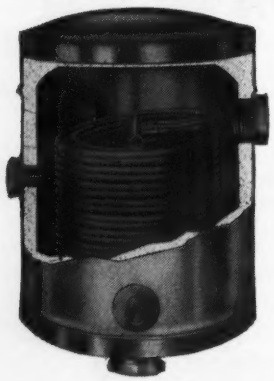

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the home-office heating engineers.

If they were in your position, many heating experts would play safe and install a two-pipe system. True, you gain the safety, the assurance of practically perfect heating, only by spending extra time and money installing the system.

Q. Should an automatic wall pump suitable for only domestic, light fueloils (pump unit direct-driven by 1750 rpm motor) be installed to serve a burner firing 10 gph, equipped with electric heaters and designed especially for No. 5 fueloil?

B. J. W., La Crosse, Wis.

A. Only if the burner is to use domestic, light fueloil for which the wall pump is suitable.

Q. A pressure job firing 1.50 gph puffed and blew off smokepipe, flame observation and flue doors of the hot-air furnace. To avoid repetition, among other things we made parts in gun tube clean and bright as new, after finding them badly soot coated.

A month later, checking job to play safe, found signs of leaking shut-off valve—much fueloil in gun tube. Burner is gravity-fed by inside tank.

Replaced the fuel unit with a new one to end risk of leaky shut-off valve in old one. Playing double safe, installed solenoid shut-off valve in nozzle line.

Finding more pools of oil in gun tube in another month, I inserted solid rod in 1/8" gun-tube line to nozzle, taking up most space in this line to avoid after-drip caused by expansion of oil in this line after burner stops with firebox hot.

Nothing I did ended the trouble, for each visit I still find big pools of oil in the gun tube. What did I do wrong, and can you say what I should do now?

U. W. F., Grosse Pointe, Mich.

A. Though excellent, the remedies you applied did not hit the nail on the head.

One possibility: A leak at either end of the nozzle adapter permits oil to spray or leak into gun tube with the burner running. As this is easy and inexpensive, play safe by installing a new nozzle adapter. Make certain to avoid

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Triangle is NOW

offering their latest line of Quality Built Truck Tanks with the following exclusive features:

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LIGHT ENOUGH TO TOSS INTO THE AIR, the G-E oil-burner motor helps reduce your oil-burner installation time. This 1/12 hp General Electric motor (NEMA 48 frame) weighs only 10 lbs., yet delivers dependable, *full power* performance.

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BUT THAT'S ONLY PART OF THE STORY. You'll find a world of difference in quality, too—**design** quality that's just not available in bulky, old-style motors.

FOR INSTANCE, you'll appreciate the doubled lubrication life of this G-E motor, which requires only minimum servicing. The insulation system, too, incorporates many "years-ahead" design advances: Mylar† polyester film insulation, which withstands moisture 35 times better than ordinary paper insulation; and tough Formex* wire and Glyptal* protective varnish, which assure you of unsurpassed electrical performance in the dampest basements.

YOU ALSO SAVE on stocking requirements for your replacement motors, because of G.E.'s easily reversible shaft-rotation feature.

AND, OF PRIME IMPORTANCE to you and your customers, every G-E motor is backed by the efficient, **local** service of the G-E Small-motor Service Station in your area. You can take advantage of these outstanding features **by specifying G-E motors on your next heating equipment order.** General Electric Co., Schenectady 5, N. Y. 702-33

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The *OLSON THROTTLE CONTROL* automatically decreases engine speed when the nozzle is closed and automatically increases engine to most efficient pumping speed when nozzle is open. This gives you these important savings

- **Less wear on pump & power take-off**
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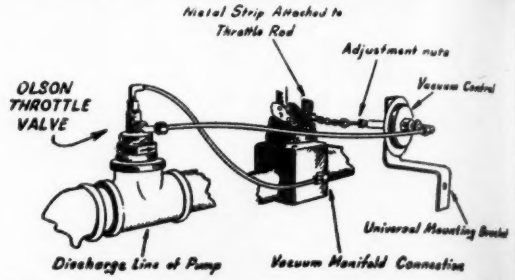

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a fueloil leak at either end.

Another possibility: Because of either a defective nozzle or incorrect adjustments of the air-handling parts in the gun tube, the oil spray from the nozzle is striking air-handling parts with the burner running. Fueloil is dripping from these parts into gun tube. Use a flame mirror to find out if this is the trouble, checking carefully on the oil spray with the burner firing. Consider replacing the nozzle and locating the new nozzle somewhat closer to the flame than the old nozzle was to make certain the oil spray does not wet the cone at the end of the gun tube.

❖

Ray Groves has been named eastern representative, Automatic Burner Corp., Chicago. He previously had been with Minneapolis-Honeywell.

Paul J. Steigerwald has been appointed territory representative in the city of Cleveland, Ohio by Detroit Controls Corp., Detroit, Mich. He has been working for the past year in the company's East Central Regional office in Cleveland and now will represent the entire line of Detroit equipment at the wholesale and original equipment manufacturer's level in Cuyahoga County.

Richard B. Sweet now representative in metropolitan Philadelphia for Radiant-Ray Radiation, Inc., Newington, Conn. *Wallace B. Burbo* is the new representative in the metropolitan Boston area.

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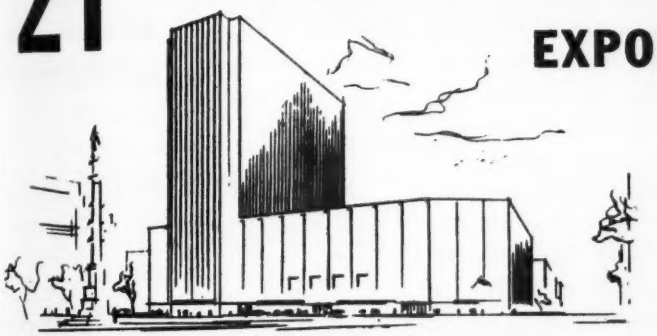

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Theater tickets *can be ordered in advance at low price.* TV and radio and fashion show tickets will be available as long as they last. Sight-seeing trips by water and land will be available too. Bring your wife to the OHI Ladies Lobby on the Mezzanine of the Park Sheraton for assistance on entertainment and where to go and what to see.

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Write Miss Sylvia Peltonen, Mgr. Housing Bureau, 90 E. 42nd Street, New York 17. Twenty good hotels have blocked off 3600 rooms. Singles $6-$9; doubles $8-$20; also suites. Tell her you're coming to the Oil Heat Exposition, accommodations desired, price range, time of arrival and departure. Confirmation will be sent you. Better write today!

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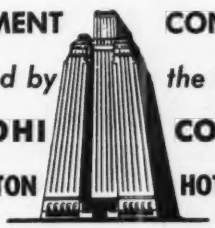

REGISTRATION: Mezzanine Floor. Meetings are held in the morning so as not to interfere with your time at the exposition. Just fill out a registration form, present it to one of the registration girls with $1. She'll make out your badge which admits you to conferences and also admits you to Exposition without registration at Coliseum.

SCHEDULE OF MEETINGS:

Mon., June 11: All OHI Meetings including the Annual Meeting, Board, Division and Committee meetings.

Tues., June 12: Domestic Equipment & Accessories Manufacturers' Conference and an Engineering-Technical Session.

Wed., June 13: Dealer Management Conferences and the Commercial-Industrial Symposium.

Thurs., June 14: Dealer Management Conference in the morning. Also the OHI Luncheon 12:45-3 P.M. to be held at the *Sheraton-Astor Hotel* at Times Square. Here annual awards are made and a nationally prominent person will be the guest speaker.

BIG DEALER INTEREST centers in Dealer Management Conferences. Many subjects are scheduled for panels and round tables such as home cooling, radio communication, automatic deliveries, telephone procedures, sales and advertising, service contracts. *Special attraction:* The new TV sound-color film will have its premiere—*first* for the industry. Also *first time showings* of new service-installation film strips. In addition, a well-known speaker.

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OHI

Towards perfect heat Control

(*Begins on page 64*)

wiring close to and parallel to line-voltage wires, or even telephone or door-bell wires. You carefully scrape transparent lacquer from the wires before splicing or connecting wires to terminals. If you splice, you solder the wires; you make certain to use rosin-core (not acid-core) solder, and you wrap the finished splice well with moisture-proof tape.

Simple coils of fine wire form the elements of the Moduflow thermostats in Diags. 2 and 3. Reducing the temperature of this wire decreases its electrical resistance.

Diag. 2 shows the three thermostatic elements (the Cycler is one of these) which make up what is essentially one series-type thermostatic system. The ohm figures are the resistance values at an ambient temperature of 74°F., and with the adjustable resistance of the Golden Circle room thermostat at its midpoint setting.

This adjustable resistance appears in Diag. 3, marked "0 to 68 ohms according to dial setting."

The Cycler in Diag. 3 provides a usual minimum "on" period for the oilburner of about three minutes (Important: With no changes in the temperatures of the outdoor Weathercaster or the Golden Circle room thermostat). You can easily check this by following the installation and service instructions, which are uncommonly easy to understand and follow. If you want to switch to longer (four and one-half minute) minimum cycler timing, you simply obtain a special resistor and connect it to terminals R and G in Diag. 1.

Though this may not be welcome news to some servicemen, you simply have to be able to use an ohm-checking instrument to do a thoroughly good job of servicing this electronic Moduflow set-up. You should have the instrument and the know-how to check the resistance values indicated in Diags. 2 and 3. To check the resistance of the Weathercaster, for example, you simply disconnect its two lead wires from terminals R and W, and apply your ohm-checker to the two lead wires. The procedure for checking the resistance of the Golden Circle thermostat is the same. You've also got to be able to check all external electronic components for grounds on a highly sensitive basis. Use the 10,000-ohm scale of the Simpson 260 which appears in the photographs, for example; any movement at all of the needle indicates a shortcoming in the leads (disconnected from the Control Center of course) or the instrument to which they are connected.

Much in the way of excellent temperature control for homes can be done electronically. Just as manufacturers of several different types of oilburner control arrangements are finding electronic devices necessary for producing results that can't be produced otherwise, oilburner installers and servicemen are finding a knowledge of electronics necessary for producing unusually modern results. If you aim to go along with the latest in oilheating but haven't yet determined to latch on to all the electronic know-how needed for this, you are already behind the times. You'd better take positive steps to improve your education. Here's one concrete suggestion: Obtain an electronic Moduflow set-up similar to the one in the accompanying photographs, and use a Simpson 260 or similar instrument to study it thoroughly. Set up a test board like the one shown. Put the controls through their paces. Then go out on actual installations and check thoroughly the performance of electronic controls.

❖

Robert E. Burns will represent The Dole Valve Co., Boston, in Worcester, Mass., Vermont and Connecticut.

Robert I. Wooden has been promoted to the position of sales representative for Pennsylvania, by General Automatic Products Corp., Baltimore, Md. He will be replaced in his former capacity of assistant sales manager by *Don Crawford*. *Casimir Wasco* has been appointed sales representative for the state of Illinois, giving General Automatic representation in the area for the first time.

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This kit saves you time and money by eliminating the nuisance of replacing paper filters used with ordinary conversion kits. Takes just a few minutes to install.

See your jobber or fill out this coupon today.

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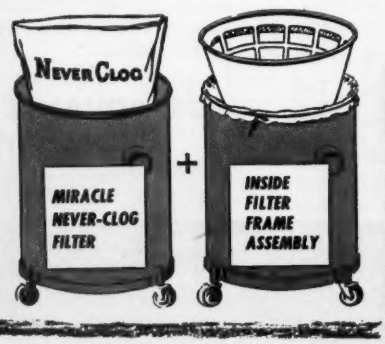

Pullman

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Rush me complete information and prices on your Never-Clog® Conversion Kit. I understand this places me under no obligation.

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Here it is

COMPLETELY PACKAGED SPI-ROL-FIN BOILER-BURNER

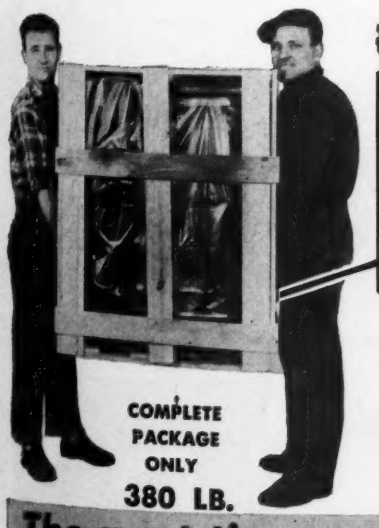
designed with you the Heating Contractor in mind

FEATURING —

- **Quality Construction (A.S.M.E.)**
- **Light weight - easy handling**
- **Easy installation**
- **High output and efficiency**
- **All-copper tankless coil**
- **Compact design**
- **Neat appearance**
- **Components assembled and pre-wired**

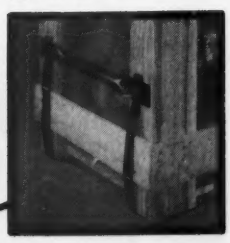
and "Easy-to-Carry" packaging.

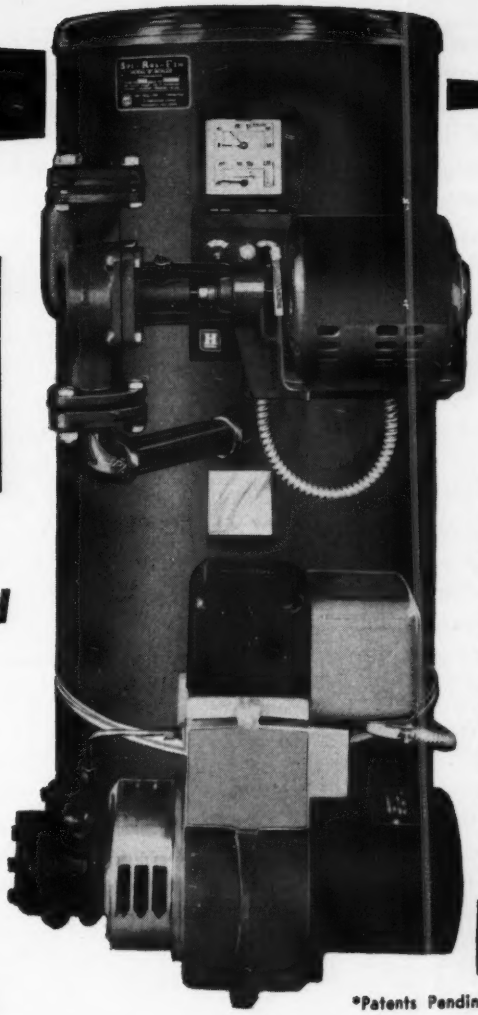
The photograph shows the easy two man handling. This is made possible by the design of the unit itself and the method of packaging. All crates are equipped with two heavy steel safety carrying handles (see photograph inset). They are bolted to the crate itself and also to two heavy duty steel straps, which pass under the full length of the crate. These handles make it possible for two men to pick-up, carry and place the complete unit where ever desired. No dollies, skids or block and tackle are needed.



COMPLETE PACKAGE ONLY 380 LB.

EXCLUSIVE





GOLD CROWN

SERIES 600

OIL FIRED HOT WATER

Package includes:

Boiler
Combustion Chamber
Insulation
Jacket
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Circulator
Theraltimeter
Thermostat
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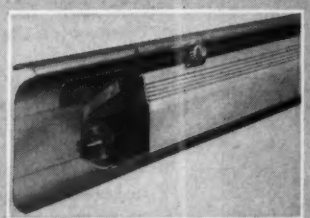
Complete package only **380 LBS.**

*Patents Pending

The only residential steel boiler featuring *extended surface heating areas* for most efficient operation.

***Get on the band-wagon now* — ask your supplier about the new SPI-ROL-FIN Boiler-Burner which when combined with SPI-ROL-FIN's Baseboard Radiation will make your next installation —**

- ***EASIER***
- ***FASTER***



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write, wire or phone for complete information!

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73 Main Street, East
Hamilton, Ontario

The next time--use a complete Spi-Rol-Fin Heating System.

Volt-Amp Test for Servicemen

(*Begins on page 80*)

over one of the jaws of the ammeter. Then a current-flow through the wire of only one-half an ampere will be reported on the scale as 15 amperes. You'll divide the reading on the scale by 30 to obtain the number that represents the flow of current in amperes through the wire. To keep it small and neat, the 30-turn coil would have to be made up of small wire, but that's all right because the wire will handle only low-amperage current, a flow not above 5/6 amps (a higher flow than this would cause the ammeter needle to try to read higher than 25 amps, the maximum for the scale). However make certain the insulation on the wire you use is suitable for the voltage you'll employ in your testing.

Volt-amp readings have many additional advantages for servicemen, not covered so far in this article.

For example, you can speed up the belt-driven blower of a forced-air furnace sufficiently to put full rated load on the blower motor. The ammeter will tell you when you have full load on the motor. Then you can determine if the cfm of the blower is sufficient to convert the forced-air heating job to summer cooling using a refrigeration setup.

A contractor often asks if a larger blower motor should be installed when a forced-air furnace job is being fitted with summer cooling equipment. Ammeter readings can answer his question.

Ammeters and voltmeters are needed in connection with testing air-conditioning having full or semi-hermetically sealed compressors; these instruments permit you to see inside the units, in effect, and find out what's going on in connection with loads, efficiencies, current consumption, etc.

In certain cities contractors face complications related to using motors made for 220 volts, though the available current is 208 volts. Ammeter readings are needed to tell if the 220-volt motors are overloaded as the result of connecting them to 208 volts—if so, to what degree.

It's usual for a serviceman to take his volt-amp tester home to provide himself with education and entertainment evenings and weekends studying his house circuits, line voltage, appliance current loads, etc. But one service manager goes even further than that, in extending his off-the-job uses for his volt-amp testing equipment. An expert at color photography, he uses his instrument to evaluate exactly the voltage at the photoflood light bulbs he uses. In the past, low-voltage at these bulbs caused them to give the wrong color temperatures, which ruined his pictures. His voltage readings ended that trouble.

❖

Arnold Linzer and Associates, New York, now representative in metropolitan New York area, New Jersey and Philadelphia areas for Krueger Sentry Gauge Co., Green Bay, Wisc.

Tri-County Supply Co., Mentor, O., now wholesaler for furnaces, boiler-burner units, conversion burners and summer airconditioners made by the Heil Co., Milwaukee, Wisc.

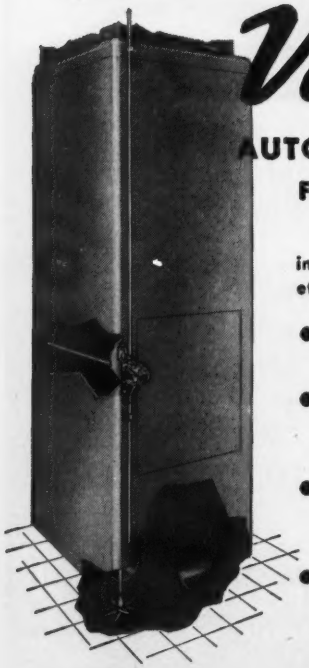
NEW! LOW COST FIELD TESTED

Vaporite

AUTOMATIC HUMIDIFIER FOR COUNTERFLOW STYLE FURNACES

in basementless houses with perimeter heating.

- Provides true winter air conditioning at low cost.
- Installs in minutes. All parts furnished for mounting on exterior of furnace casing.
- Balanced humidity assured by sensitive thermostatic control of water flow.
- Complete assemblies for furnaces with concrete floor plenums, or with crawl space plenums.



MODEL CF-500

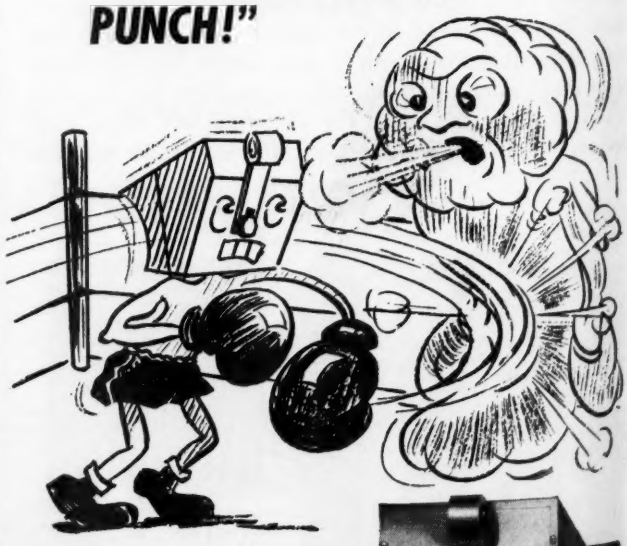
WRITE FOR CATALOG FO-5

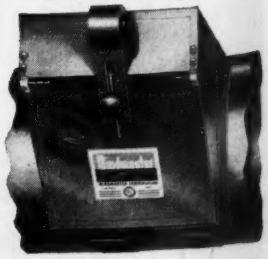
AUTOMATIC HUMIDIFIER CO., Cedar Falls, Iowa

Windmaster The Modern Draft Control that's "QUICKER ON THE DRAW"

and

"PACKS a STRONGER PUNCH!"





Windmaster Draft Controls

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Columbus 15, Ohio

DIAL 4-9271

HART HEAT

DIVISION AVERY FARM MACHINERY CO.

Foot of Junction Street

PEORIA, ILLINOIS

A HART TO HEART LETTER ON BETTER OIL HEATING

FROM: Hart Heat, Peoria, Illinois

TO: Thinking Oil Burner Merchants, Anywhere, U.S.A.

SUBJ: Making Salesmen and Servicemen Happier at Increased Profits.

If you've never blown your top, because of the time, service expense, frustration or loss of a sale, caused by a balky, pulsating, oil burner or draft problem, this is not for you. Think back---

If you can remember how you felt and would still like to know how you could have conquered such a critter, THEN READ ON---

By means of the old proven principle of INJECTION--newly applied to the atomized oil and air stream--you can get sweet revenge. At the same time, you will boost the morale of yourself, your sales and service organization--AND your customer prestige.

Do you recall--all the things you tried? Would it have been a feather in your cap to lick it? If it comes within the capacity range of 0.65 thru 1.65 GPH, it's a lead pipe cinch. Just tear out this page, attach it to your letterhead and mail it to us.

This will mean that you are the kind who take pride in their work. We will then send you a SPECIAL UNCONDITIONAL GUARANTEED MONEY-BACK OFFER to try out one or two of these NEW CONCEPTION Hart Supra Flame Burners (exclusive patents pending) at an unheard of price.

We know it's the "greatest" because all static air pressure in the gun tube is eliminated. The result is the smoothest, quietest small fire ever produced. We are sticking our neck out in order to convince you by deeds rather than words. We don't care about the handicaps. We'll stake our experience, reputation and 35 years of making small capacity burners for small homes against them.

BY HANDICAPS WE MEAN:

Poor-draft or no-draft, PULSATIONS, low efficiency, NOISE (mechanical vibration or combustion roar), jumpy starts or bumpy stops. Or--a combination of any or all of these troubles.

You simply switch burners. Then adjust draft to .005 or .010 over-the-fire. Close all vents or "breathers". No special tools required. You become sole judge of performance. You also name any reasonable try-out time, up to sixty days. Spring weather is the nastiest time to test and we accept that handicap too.

We can not be at the June oil burner show in New York-But we can show you oil burner RESULTS in your own home town, in your heating plants, using your local fuel, in your actual jobs. PRACTICAL OPERATING RESULTS that you'll hardly believe even after you see and hear for yourself.

Now tear out this page or mention this ad on your letterhead. Jot down a couple of details for tip size, length of tube and mounting and mail it to us. The cost is nothing to examine this unheard of offer. We promise to lift oil heat and your reputation to a new high, for the coming season, in your territory.

Low down competitive prices mean nothing when you have something to sell like Supra Flame. Superior results that can be demonstrated--actually, honestly and conclusively at no price penalty.

Hart-ily yours,

Smitty.

Earl K. Smith
Hart Heat Div.

QUALITY INSTALLATIONS NEED
BRANFORD BURNERS
Model J Designed For —
- Small Boilers & Furnaces
- Capacity .75 to 1.75 GPH
- Ease of Service
- Flange or Pedestal Mounting
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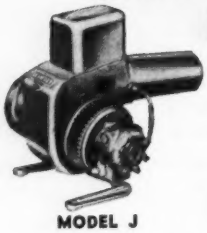

MODEL J

Manufacturers of Residential, Commercial & Industrial Burners
SOLD THROUGH WHOLESALERS ONLY
For Complete Information Contact:
BRANFORD TANK & HEATING PRODUCTS, INC.
286 HOWE AVENUE SHELTON, CONN.

Canadian Show

(*Begins on page 76*)

age dealer is missing profitable deals in the replacement field. The public likes to see, feel and buy and we don't make it easy enough for them to purchase a replacement furnace."

Williams briefed the dealers on the importance of advertising, the necessity to follow-up such effort and recommended foot-in-the-door offers—furnace cleaning, for example, to get inside the house and have the opportunity to make a survey to determine if replacement or modernization work is needed. His conclusion tied in with the themes of some of the other speakers: "Stop selling on price which disregards quality and sell creatively."

W. T. Edmeads, Superior Propane, Ltd., spoke briefly on the outlook for LPG, followed by the concluding speaker on the panel, M. M. Miller, General Steel Wares, Ltd.

Looking at the "Future of better Heating," he predicted that the certified bonded heating program to be effected by local chapters would be helpful both in protecting the consumer against inferior installations and in helping the dealer to make a legitimate profit. Under the program a new heating system is inspected and bonded. Then if the installer can't or won't make good on deficiencies, the local association will, without cost to the customer.

During an afternoon meeting on March 20, D. M. Dymond, supervising engineer, Thermal Laboratory, Canadian Standards Association, discussed the new standard, B140-4, which covers warm air furnaces and unit heaters fired with pressure and vaporizing oilburners. Dymond pointed out that the industry prepares the standards and CSA provides the facilities for testing equipment.

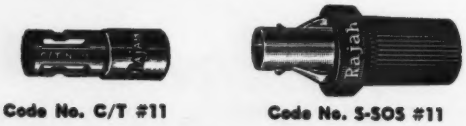
He traced the necessity for the standards, briefly outlined the requirements and described the set-up for testing equipment at the laboratory. Dymond described the standard for warm air furnaces as a co-operative attempt by industry to establish yardsticks for minimum dependability and performance.

Next was H. W. Hignett, Ontario regional supervisor, Central Mortgage & Housing Corp., speaking on "The National Housing Act as it affects heating Contractors in Canada." He cited statistics showing the acceptance of warm air heating in Canada, remarked that the Canadian Government has been in the housebuilding business since 1935 and that today 70% of Canadian homes are financed under the National Housing Act.

Hignett stated that a large proportion of complaints his agency receives comes from homeowners who are dissatisfied with their heating plant. He emphasized that Central Mortgage does not guarantee performance, but the average homeowner looks to the agency for protection. Hence, their inspectors are qualified to evaluate heating installations.

The agency, though, lacks controls for enforcement and Hignett expressed the hope that local associations would help correct some of the complaints.

RAJAH TERMINALS
FOR OIL BURNER SPARK PLUG IGNITION CONNECTIONS
Made in Two Styles
CRIMP TYPE and SOLDERLESS



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THE RAJAH CO., 35 Verona Ave., Newark, N.J.

SOOT A WAY
CLEANS ALL OIL & GAS FIRED FURNACES — BOILERS
Harmless to A Heating Plant
Removes Soot Down to Metal
AVAILABLE—1½, 3, & 25 LB. SIZES
DEALERS—JOBBERS INQUIRE
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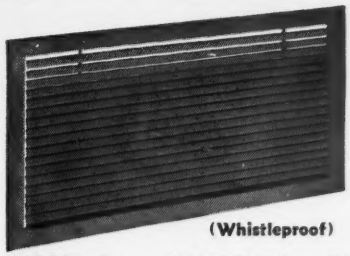

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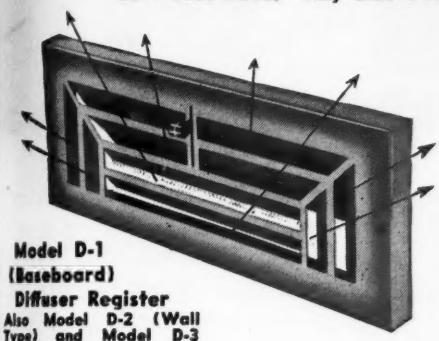
MODEL R — High Velocity, High Efficiency Return Air Grille. 89% Free Area. Any Size Desired.



Model D-1 (Baseboard) Diffuser Register
Also Model D-2 (Wall Type) and Model D-3 (Out-of-Wall Type)

SIZES:

10x4	12x4	14x4
10x5	12x5	14x5
10x6	12x6	14x6

Besides Diffuser Type registers the National Line includes all types and sizes of registers and grilles. **Write for Catalog.**

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The "Extra"
your customers will gladly buy!

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APPLIED MECHANICS COMPANY
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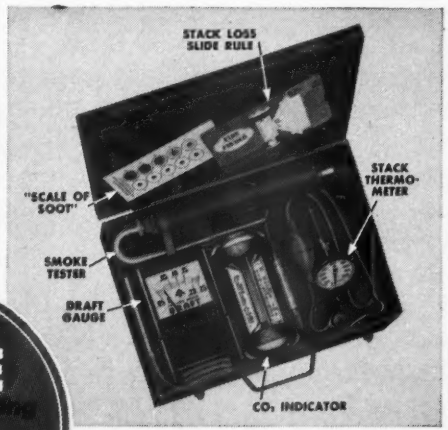

The FYRITE UTILITY KIT

... PACEMAKER FOR PROFITS from Expert Tune-up Service

Making the most of your ability to do an expert tune-up job will pay you big dividends in gaining you competitive leadership and neighborhood recognition of your competence as a heating expert. The combustion-testing kit shown here contains precision-made quality instruments with which you can make fullest use of your know-how in making a fuel conservation survey, checking a burner for wornout parts and needed repairs, or running an efficiency test to close a replacement deal.

The kit contains the well-known FYRITE CO_2 Indicator, the versatile MZF Draft Gauge, the all-metal TEMPOINT Stack Thermometer and the sensationally new TRUE-SPOT Smoke Tester. Now, for the first time, you can adjust an oil burner quickly and expertly for highest CO_2 without objectionable smoke . . . do away with guesswork, and "hit and miss" fumbling in adjusting for clean firing. The "Scale of Soot" which comes with the TRUE-SPOT tells you the limits of permissible smoke for various burners and types of heating systems. This amazingly simple method of oil burner adjustment is the greatest advance in combustion testing since the introduction of the FYRITE. You will be proud to be among the first to own this "up-to-the-minute" combustion-testing kit.

For complete information on this and other new tune-up equipment— write for Bulletin 777

BACHARACH INDUSTRIAL INSTRUMENT COMPANY
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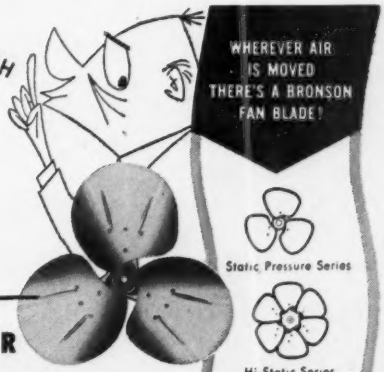
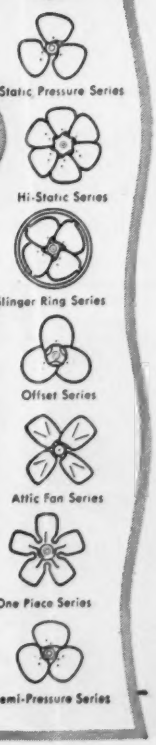


THEY'RE THE
QUIET TYPE!

Bronson
PRICE-SAVER
FREE AIR SERIES

FAN BLADES

WHEREVER AIR IS MOVED THERE'S A BRONSON FAN BLADE!



You'll find Bronson PRICE-SAVERS specified as standard equipment wherever fan blades operate in **free air.** Low in cost, efficient, **exceptionally quiet!** Recommended for and widely used on air circulators, ventilation units, coolers, window fans, pedestal, wall and desk fans, etc.

FEATURES

Wide overlapping blades assure super-hushed performance. No 60 cycle resonance. 3 or 4 blade designs. Strong, riveted type construction. Channel flange for extra strength. Hub mounted front or rear. Diameters 8" to 30", pitches 6° to 40°.

Performance data available. Wide selection of other blade types for every air moving application. Ask for recommendations.

Representatives in all important industrial areas.

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FO-5

HAYWARD
Rotary Atomizing Burners
¾ to 12 Gph
Boiler-Burner Units
400 to 730 Sq. Ft. EDR Steam
Pressure Atomizing Burners
¾ to 10 Gph
Boiler-Burner Units
200 to 2000 Sq. Ft. EDR Steam
Write for franchise information:
HAYWARD OIL BURNER CORP.
86 Kirkland Street, Cambridge, Mass.
Factories in Brooklyn, N.Y. and Taunton, Mass.

James A. Murray, associate professor of architecture, University of Toronto, in discussing summer cooling from the design viewpoint, mentioned that he believes Canada will before long get quite a lot of residential air-conditioning. It has come very fast in commercial applications and home cooling is sure to follow as in other areas. A few significant statements by Murray were quite educational to the audience:

It's better to undersize a cooling installation rather than to oversize it because continuous operation of the compressor will do a much better job of dehumidifying than will intermittent operation.

As a general rule of thumb, it takes a ton of refrigeration to 500 sq. ft. of floor space in a home.

A slab floor type house is easier to cool.

A flat roof house is harder to cool.

Sun on a roof creates twice as much heat as is gained through walls, windows and floor combined.

A light colored roof is best for cooling jobs. A white shingled roof stops 57% of the sun's heat, a black roof only 4%.

We must get cooling costs generally accepted in mortgage considerations.

The second speaker on the final afternoon was Herbert Gilkey, technical secretary for research, National Warm Air Heating & Air Conditioning Association, Cleveland, Ohio. He mentioned that Canadian airconditioning is three to five years behind that of the U. S., but that this is actually an advantage.

Five years ago we had a lot to learn. The old methods of calculating heat gains oversized the jobs; today the latest edition of NWA's Manual 11 is fairly foolproof, in his opinion. To folks who may think that Canada is too cool for airconditioning, Gilkey pointed out that its principal cities were mostly along the southern edge of the Dominion with climates similar to Minneapolis. That city has taken on quite a lot of cooling applications in the past two or three years. The Canadian summers become decidedly hot in the Toronto-Hamilton-Windsor area particularly.

He mentioned that it is definitely necessary that a home be fully insulated—both ceiling and side walls—if cooling is to be used. Often the saving with the smaller sized unit then required will pay for the insulation expense.

His particular topic had to do with cooling through perimeter duct systems imbedded in floors. Research at the University of Illinois has shown that these systems are very satisfactory, particularly if air diffusers are used to throw the air up from the floor level. Cooling needs larger duct capacities than does heating, particularly in the States, but less so in Canada where the cooling load is lighter than in our central to southern regions.

❖

Hugh W. Clarke has been elected treasurer of the Acro Mfg. Co., Pittsburgh, Pa. Previously, he was associated for many years with the Timken Silent Automatic Division.

PRESS THE BUTTON!
KILL THE OIL ODOR
INSTANTLY
PERMANENTLY
With **ODORGON**
Stop nuisance service calls!
One ODORGON aerosol bomb does the job of 10 pounds of powder. Dealer cost only $1.50 per can.
ASK YOUR JOBBER
or write
STEWART-HALL CHEMICAL CORP.
Mt. Vernon, New York

GORTON VALVES
ESTABLISHED 1887
FAST VENTING VALVES
for every
Steam Heating System

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Low Cost COLE-SEWELL

DRAFT CONTROLS

Outlast, Outperform Others

DRAFT GOVERNOR

A simple, positive, easy to install, fully automatic and approved control for oil burners. Permits no loss of heated air from building. No excessive cooling of chimney. Seven domestic sizes from 6" to 12" . . . Both square and round industrial models in all sizes.

DRAFT KOREKTOR

Long famous for fuel economy with domestic space heaters. Close fitting counterbalanced blade prevents leakage and stays closed until draft reaches ideal minimum. Sensitive, finger-tip outside adjustment. Many other important features. Domestic models in 4"—5"—6" sizes. Industrial models 14" up.

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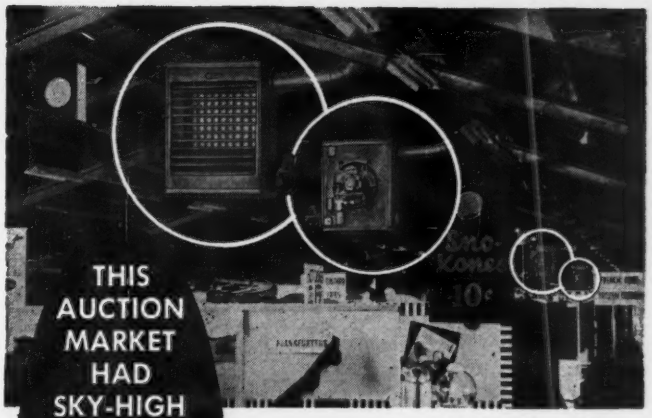

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PROBLEM: Open only on weekends, this large, drafty farmer's auction market used abnormal quantities of fuel and still never warmed up sufficiently.

SOLUTION: 8 Delta oil-fired unit heaters were installed. They run on low cost #2 fuel oil and give immediate warm-up. Adjustable louvres direct heat where needed . . . without cold spots, overheating or heat wasted on walls or ceilings.

RESULTS: The market now is comfortably heated in an hour. Fuel bills have been cut almost 50%.

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This is only one of hundreds of jobs that a Delta OIL Unit Heater can do better and more economically.

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TRENTON 8, NEW JERSEY

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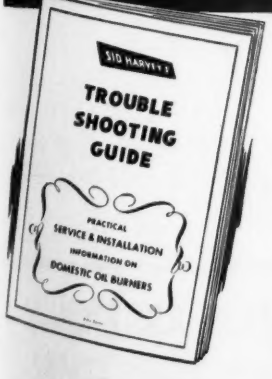

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...with **PIPETITE-*Stik***

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(*Begins on page 69*)

I. Alex Grosney, President of Heating Equipment and Supply Company, has a complete line of accessories for all types of heating equipment. He is active in promoting good heating. He says: "We held another Heating School on March 5, 6 and 7 of this year, at the Manitoba Technical Institute, which was very successful. We had 48 students in attendance, coming from cities such as Fort William, Port Arthur, and also from the Province of Alberta. This attendance has really been Prairie Province country wide, with most of the people who were attending holders of Journeymen's license.

Grosney

"Upon completion of this Heating School a dinner was held with the Instructors and Students at the St. Charles Hotel. A discussion panel was present to answer any questions which might have arisen throughout the school and still remained unanswered. All together we had a very educational program, which coincidentally was Education Week."

"I think Central Gas (Winnipeg and Central Gas Co.) is willing to set up a subsidy to get natural gas into Winnipeg. I have reason to believe they are sick of the idea of furnishing L.P. gas to hold customers until natural gas is delivered. From what I hear customers will not stand for high priced L.P. gas much longer.

"A decrease in fueloil prices is more probable than an increase. A recent two cent tax on gasoline was not applied to fueloil. A few are waiting for natural gas, but most homeowners are installing oil. The number of conversion burners installed is decreasing percentagewise. The trend is more and more toward complete package units, boiler or furnace with burner. The old-fashioned coal-burning boilers are found to be lacking in efficiency, even when fired with the best of conversion oilburners."

So we have a plug for coal, gas, central plant heating and fueloil. You may draw your own conclusions. Perhaps all the figures were not quoted, but it seemed generally agreed that oil is the favorite in homes, with estimates from all, including competitors, running from 80% to 95% of all new homes.

❖

Walter S. Wolf has been appointed European regional manager, White Rodgers Electric Co., St. Louis, Mo. He has had many years' experience in Europe, South America and the Far East. He will be assisted by *Harald R. Port* whose title will be European district manager.

Frank J. Sprague has been named district factory representative, northeastern New York territory, Bell & Gossett Co., Morton Grove, Ill. *Richard Markel* joins the company's New York office.

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